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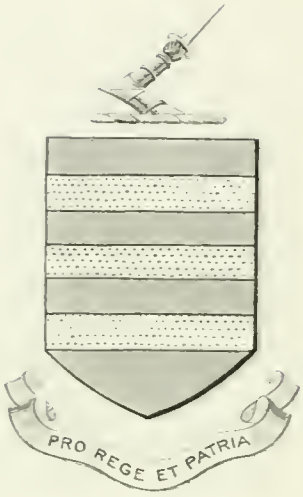

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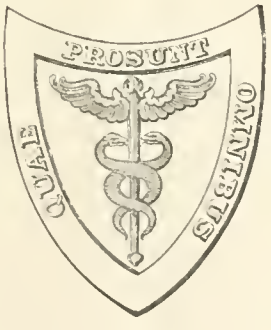

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ORIGINAL LECTURES.

ON LOCAL ANÆSTHETICS.[1]

A Clinical Lecture, delivered in Cochin Hospital.

BY PROFESSOR DUJARDIN-BEAUMETZ,

OF PARIS, FRANCE.

GENTLEMEN: In the present lecture I propose to consider the new anæsthetics, and omitting altogether surgical anæsthesia in its various bearings and uses, which would require a whole course of lectures, I shall take up only one of the minor aspects of the question, and discuss the subject of local anæsthesia, which presents no little interest at the present day.

For a long time clinicians have sought to diminish or abolish the sensibility of the skin in regions where the minor surgical operations, such as simple incisions of the skin and cellular tissue, were to be performed. This was considered the more desirable, inasmuch as grave accidents sometimes attended the first attempts at general anæsthesia. One of the means most employed was cold.

It was, in fact, known that when cold strikes the exposed parts of the body it produces numbness and insensibility, and practitioners had recourse not only to local applications of ice, but also to refrigerant mixtures. Hence it was that James Arnott, of Brighton, many years ago, advised the combination of ice and common salt, and Adolph Richard, that of sal-ammoniac, salt, and ice.

One may also obtain this local anæsthesia by the rapid evaporation of volatile substances, such as ether, and Simpson was one of the first to counsel this mode of refrigeration. I remember to have seen, thirty years ago, at the commencement of my medical studies, a very ingenious apparatus, made according to the plan of Prof. Richet, which consisted in a pair of bellows over which was placed a reservoir of ether; as fast as the stream of ether was projected on the exposed surface of the skin, it was volatilized by the blast from the bellows. This apparatus, which was rather cumbersome, was advantageously replaced by Richardson's spray producer, of which we make use at the present day.

The atomization of ether as a process of local anæsthesia possesses great advantages over the local application of ice or refrigerant mixtures; nevertheless, these sprays are not free from the other inconveniences of refrigeration. Cold does, in fact, abolish sensibility, but during the application of the cold the pain is quite keen and when the anæsthesia has disappeared, the pain returns more pungent than before, so that if one suffers but little during the operation, the after-effect is quite painful; moreover, the reaction is sometimes followed by profuse hemorrhage. These are disadvantages which limit the usefulness of local anæsthesia by cold.

Other liquid substances have been substituted for ether, such as rhigolene, by Bigelow, of Boston, and Delcomenete, of Nancy, a few years ago, advised carbon disulphide as a means of local anæsthesia. I have myself been much interested in this subject of the local uses of bisulphide of carbon. This chemical, by reason of its extreme volatility, produces refrigeration of the tissues, but this refrigeration is rapidly followed by such intense rubefaction, that carbon disulphide ought rather to be considered a rubefacient of the first order, superior in many respects to mustard sinapisms, than as a local anæsthetic. It has also been proposed to employ certain gases for the production of local anæsthesia, and it is for this purpose that carbonic acid was recommended as early as 1772 by Percival. In 1856 Simpson again took up this means of local anæsthesia, improving the apparatus for its production, and it was then quite a common thing to see local douches of carbonic acid used in the hospitals of Paris, though rather for analgesic than for anæsthetic purposes; they were used chiefly to relieve the pains caused by cancer of the uterus. We have even seen this gas used in the treatment of neuralgias at the thermal stations, where are found waters highly charged with carbonic acid, as at St. Nectaire. Finally, in 1883, my friend, Dr. Campardon, following the ancient practice of Percival and Simpson, applied carbonic acid to the treatment of whooping-cough.

Thanks to the acknowledged anæsthetic properties of carbonic acid, it abolishes the exaggerated sensibility of the glottis, and thereby lessens the fits of coughing in pertussoid patients. The means employed by Campardon is very simple: it consists in utilizing the well-known soda water siphon bottles—the bottles which are in use for this purpose are destitute of tubes dipping into the liquid, and only the liberated gas issues from the mouth of the bottle. A rubber tube adapted to the siphon, and which the patient takes between his lips, conveys the gas into his mouth; the child makes a few inspirations, and Dr. Campardon affirms that by this means he has seen the paroxysms rapidly diminished. But I come now to a mode of local anæsthesia of much more recent date, and which is destined to render us great service; I refer to coca and cocaine.

From time immemorial, the Peruvians have made use of the leaves of a shrub belonging to a family of Erythroxylaceæ, the *Erythroxylon coca*. In their estimation, this leaf has multiple remedial properties, and, according to the statement of Dr. Beugnier-Corbeau, "the sacred plant of the Incas was a promise of life to the moribund who could drink its sap; an uncomparable viaticum to the traveller whose hunger it appeased; a cordial to raise the forces and revive the senses benumbed by the cold of the rugged winter; a source of sweet forgetfulness to the man harassed by chagrin;

[1] Translated, from advance sheets, by E. P. Hurd, M.D., of Newburyport, Mass.

and a joy-producer to him who would taste the pleasures of love."

When, twenty years ago, or a little more, it was proposed to introduce coca into therapeutics, it was chiefly its tonic and excitant properties which were vaunted; and you will find in the thesis of Damarle, and in the writings of Reis, indications relative only to these tonic properties.[1] However, in 1860, Niemann had discovered in the leaves of coca a crystalline alkaloid having for its formula $C_{17}H_{21}NO_4$, to which he gave the name of *cocaine;* and, two years afterward, Walker and Lossen found another active principle, of syrupy consistence, having a very marked ammoniacal odor, to which they gave the name *hygrine*.

These chemical discoveries added nothing to our knowledge of coca till Koller made known, on the 16th of October, 1884, to the Medical Society of Vienna, the marvellous anæsthetic action of cocaine on the mucous membrane of the eye. You remember how great was the astonishment, and what incredulity was manifested; but soon the facts which Koller had announced were confirmed all over Europe. Abadie and Darier, Trousseau, Panas, and all the ophthalmologists in France, showed the great advantages which might be obtained in ocular therapeutics from the discovery of Koller, and the anæsthetic properties of cocaine were henceforth everywhere recognized. By what train of ideas was Koller led to make this grand discovery, which constitutes an epoch in the therapeutic history of this century? And how is it that coca, from being the tonic and waste-restraining medicament which it once was, has been transformed into a local anæsthetic? The history is so strange that you will allow me here briefly to relate the points of interest.

Morino y Maiz,[2] in his thesis of 1868, on cocaine (which, by the way, was the first that was ever written on this alkaloid), made mention of the following fact: "In large doses, cocaine produces in animals diminution, then annihilation, of sensibility, without motility being completely abolished; in all cases the pupil remains dilated."

In 1870, Gazeaux gave expression to certain doubts respecting the tonic and waste-restraining properties of coca, and thought that this medicament might act by allaying the sense of hunger and thirst through its anæsthetic effect on the lingual and gastric mucous membranes.

In fact, physicians who were engaged in treating affections of the larynx had noticed this special anæsthetic action of coca; and Fauvel, since 1869, was in the habit of using coca in laryngeal diseases.

In 1877, Saglia insisted anew on the advantages to be derived from the sacred plant of Peru in painful affections of the pharynx, and this anæsthetic action was so well shown that, in 1881, Du Cazal,[3] at the Medical Society of the Hospitals, thus expressed himself *a propos* of a case of tuberculous ulceration of the larynx presented by our colleague, Millard: "The tincture of coca is an excellent medicament with which to obtain anæsthesia of the pharynx, and to produce such anæsthesia it is only necessary to paint the mucous membrane with the tincture." Gougenheim,[1] in 1882, when writing of the local treatment of the laryngites, said: "The extract of coca, diluted in water, so as to form a very concentrated solution, produces a veritable sedation; I do not know the cause of this therapeutic action."

Moreover, the physiologists, on their part, did not remain inactive, and, in 1880, Von Anrep spoke of the pupillary dilatation, but had not observed the state of the mucous membranes. The following year, Coupard and Laborde noticed the anæsthetic action of cocaine. Unfortunately, their experiments remain incomplete, and the results have not been published.

Hence, then, gentlemen, as you see, what led Koller to his discovery was the knowledge of the local anæsthetizing properties of coca on the lingual and pharyngeal mucous membrane; he thought, and rightly, that all the mucous membranes must respond alike to the action of this medicament; and since then we have been able to add that even the skin submits to this anæsthetic action. It is unfortunate that the discovery of the local anæsthetic properties of cocaine was not followed up in France, where there had been so many investigations on this subject, and where, fifteen years before, the anæsthetic action of coca on the pharyngeal mucous membrane had been pointed out.

When you put in contact with a mucous surface a two per cent. solution of hydrochlorate of cocaine, you obtain, at the end of from five to ten minutes, loss of sensibility of the mucous membrane, and this effect lasts an hour or two. The anæsthetic action does not seem to exhaust itself by habit — that is to say, a second and third or any future application is as successful as the first. The same insensibility is produced when the cocaine is introduced under the skin, and in the experiments made under our direction by Dr. Paul Compain, and which you will find described in his inaugural thesis,[1] I studied thoroughly the anæsthetic action of hypodermic injections of this alkaloid.

You see before you a patient on whom we are about to experiment: we pinch up a fold of the skin of the forearm and inject twenty drops of a two per cent. cocaine solution. This injection, as you may see, does not cause any painful sensation. If in the course of five minutes, we explore the sensibility of the skin over the point of injection, this is what we shall observe: the sense of touch is obtunded, and the patient tells us that he feels as if the skin over that place were covered with a thick layer of wadding. The consciousness of painful impressions is abolished, and we may with impunity scratch or prick the part with a needle; the patient has over this region only the sensation of contact of a foreign body. This anæsthetic state of the skin is produced in only a very limited zone, which exactly corresponds with the portions of the derm which have been directly in contact with the solution of cocaine, and in our patient it represents a circular space of about an inch and a half in diameter. This complete anæsthesia of the skin lasts about twenty minutes, then disappears

[1] Damarle: On Coca, Thèse du doctorat, 1862. Reis: On the Use of Coca, Bull. de Thér., 1866.

[2] Morino y Maiz: On Cocaine, Thèse de Paris, 1868.

[3] Saglia: On Coca: its Therapeutic Applications, Gaz. des Hôpitaux, May, 1887. Du Cazal: Compt. Rend. de la Soc., 1881, p. 283.

[1] Gougenheim: Local Treatment of the Laryngites, Soc. de Thér., 1882.

[2] Paul Compain: Contribution to the study of hypodermic injections of hydrochlorate of cocaine. Thèse de Paris, 1885.

little by little, and an hour after, there remains but a trace of the anæsthetic phenomena.

May these hypodermic injections be accompanied by general symptoms? Yes, in certain cases. In the first researches which were made in our laboratory by Drs. Bardet and Meyer, these experimenters affirmed that they had felt such general effects as, first, a marked dilatation of the pupil, coming on half an hour after the injection, then syncopal symptoms, so intense that one of them completely lost consciousness and fell on the floor—his face was pale and his pulse imperceptible; these symptoms returned whenever he assumed the erect posture.

Since then we have observed the same symptoms in a number of our patients. One of these was a woman on whom we wished to practise forcible dilatation of the anus; we injected around the margin of the orifice a syringeful of a two per cent. solution; there supervened syncope, nausea, and curious twitchings of the alæ nasi.

I was recently consultant in a case in which I had ordered subcutaneous injections of cocaine, to combat a vehement intercostal neuralgia. The attending physician wished to experiment on himself with the same injection, after having administered it to the patient. In both of them there were very pronounced symptoms. The physician experienced an attack of syncope, while the patient had very strange sensations; he felt, he said, extraordinarily light, and he seemed to himself to be lifted up into the air like a balloon.

In all these cases the injections were practised with a two per cent. solution, and the dose did not exceed from one to two cubic centimetres. I must add that, in all these instances, the patients were standing or sitting, which postures would be likely to favor syncopal attacks. Hence it is that, since I have taken the precaution to make the patient lie down whenever I have administered the cocaine injection, these phenomena have not occurred.

To what causes must we ascribe these effects? Probably to the cerebral anæmia produced by the action of cocaine upon the vasomotor nerves; in fact, besides the considerable part which the dorsal position plays in the appearance or non-appearance of the general effects of cocaine, it is noteworthy that these general symptoms are the more likely to supervene, the more anæmic the patient is, and that they are inconspicuous when the patient is strong and vigorous. Hence it is that Dr. Compain has never seen such accidents produced as the result of the numerous injections which he has made on himself. Moreover, when experiments are performed with cocaine on animals, and particularly on the monkey, such as Prof. Grasset and Dr. Henri Negre have made, there appear convulsive phenomena characterized by attacks of clonic spasm, and this happens when the dose is reached of six cubic centimetres of a two per cent. solution.

Moreover, cocaine has an evident action on the temperature, which it raises; it is, therefore, a hyperthermic agent. This action, however, is very variable, according to the kind of animal experimented on; for, while cocaine raises the temperature in the dog, it lowers it in the monkey. In fine, my pupil Dr. Rigolet has noted *de visu* the modifications effected in the capillary system by the action of cocaine. Several drops of a one per cent. solution determine in the frog, at first a dilatation, then a contraction of the capillaries; and Rigolet considers this alkaloid a powerful vaso-constrictor. These experiments give us a physiological explanation of the general symptoms which in man are determined by cocaine.

However, thus far these accidents of a toxic kind have never presented any gravity, and to determine such constitutional effects it is necessary to employ pretty large doses. Thus, Rigolet has been able to inject, without any harm, 40 centigrammes in the veins of a dog weighing 18 kilogrammes. Likewise, Bignon, of Lima, has observed that the Indians can absorb as much as 40 centigrammes of cocaine in chewing the leaves, without experiencing any toxic manifestations.

Ordinarily, to obtain anæsthetic effects, we make use of a two per cent. solution of chlorhydrate of cocaine. According to the researches which I have made, the increase of the anæsthesia is not proportioned to the increase of dose, so that we may adhere to this two per cent. solution with the certainty of experiencing the desired results.

In certain cases we may employ pomades of cocaine, and in the preparation of these it is not necessary to transform the cocaine into a hydrochlorate. Bignon, of Lima, has, in fact, shown us that the alkaloids of coca are soluble in unctuous substances of mineral origin, such as vaseline; the dose here is the same as in the case of the solutions; finally, one can have recourse to preparations made from the plant itself. Delpech, in particular, has made an extract of coca according to the method of the American Pharmacopœia—that is, by evaporating the alcohol, and which is said to render good service in affections of the pharynx.

Before undertaking the consideration of the action of coca and its therapeutic applications, I desire to say a few words about its cost.

When Koller's discovery was first made known, cocaine readily brought a very high price, and this was the first drawback to its general use. I have, in fact, known physicians, ignorant of this high cost, to prescribe gargles, lavements, and ointments, the price of which exceeded twenty dollars. To-day cocaine is sold at a much cheaper rate, and you can find in our drug stores cocaine of impure quality, though still pure enough for all anæsthetic purposes, save in ophthalmic surgery, the price of which varies from four to six francs a gramme.

THERAPEUTIC APPLICATIONS OF COCAINE.

Cocaine is, as we have seen, a local anæsthetic of the mucous membrane and the skin. To begin with the subject of the production of cutaneous anæsthesia, it is necessary, in order that the cocaine may act, that it be applied to an abraded surface, or introduced under the skin. I have never obtained the least effect from the prolonged contact of cocaine with the undenuded skin, whether the alkaloid were rubbed over the derm in the form of concentrated solutions, or in the form of ointment.

When the skin is deprived of its cuticle, and cocaine is applied, the latter has a very marked anæsthetic action, and you can derive advantage from this property in the treatment of *burns* where solutions or pomades of this alkaloid at once dissipate the atrocious pain which accompanies burns in the first and second degrees. You

will obtain the same analgesic effects in the case of cracked nipples, so common in nursing women, and Audhoui has reported interesting instances of this kind. In certain pruriginous affections of the skin, moreover, cocaine may be used to allay the tormenting itching.

Administered under the skin, two per cent. solutions of cocaine enable us to perform, without pain, a great number of minor operations. It is with the help of this local anæsthetic that I now practise pleurotomy, and that I secure for the patient exemption from the pain of the first stage of the operation. To attain this result, I inject at both extremities of the line which my bistoury has to traverse a syringeful of a two per cent. solution of hydrochlorate of cocaine.

You may in this way, without pain, open a superficial abscess, or extirpate a lupus; the pain of incising a felon is much mitigated; by the help of cocaine, tracheotomy is robbed of half its terrors; and, in short, you will derive advantage from the local use of this alkaloid in all instances where the incision of the skin is the chief element of pain. In all these cases the local anæsthesia by cocaine is far superior to that produced by cold. Remember that you should always operate with the patient in a recumbent posture, to avoid the vertigo which might ensue, and you should wait ten minutes, at least, after the subcutaneous injection before proceeding to the incision of the skin.

By the aid of cocaine I have operated for phimosis, but if you are not very careful you will have difficulty in approximating the skin and mucous membrane with your *serre-fines* by reason of the artificial œdema produced by the injection of the cocaine solution in the cellular tissue of the prepuce.

I come now to the applications of cocaine to the affections of mucous membranes. I will omit what pertains to the ocular mucosa, this being the special province of the ophthalmologist, and I will consider rapidly the benefits derivable from cocaine in affections of the mucous membranes, commencing with the digestive tube.

The buccal and pharyngeal mucous membranes are readily and rapidly anæsthetized by cocaine. In operations on the pharynx, epiglottis, and larynx, generally so painful, you may make applications of this alkaloid, and you have often seen in my service tuberculous patients who could scarcely swallow a mouthful, enabled henceforth to eat by reason of relief from suffering obtained by the repeated use of solutions of this charming local analgesic. You all doubtless remember the case of the late General Grant, and the comfort which he obtained the last few months of his life from cocaine.

In the cases of which I have just spoken, the throat is painted with a strong solution of cocaine a few minutes before a meal, and the local anæsthesia lasts about three-quarters of an hour, giving ample time for the repast.

By means of these local applications of cocaine such operations as staphylorrhaphy are facilitated, and laryngoscopic examinations are rendered comparatively easy. It is also a good plan, in order to avoid the pain of amygdalotomy, either to inject a little cocaine into the tonsil, or, as Lermoyez advises,[1] to paint the tonsil over several times with a two per cent. solution before resorting to the operation. Moreover, the painful period in the performance of lavage or "gavage" of the stomach due to the contractions which take place in the isthmus of the fauces, may be obviated by painting with cocaine, and I have been careful to resort to this means whenever patients have experienced difficulty in the introduction of the stomach-tube.

But the anæsthetic action, so local and superficial, of cocaine can be of no service in toothache or in the extraction of teeth; on this point all the best dental surgeons, such as Galeppe and Magitot, are agreed.

Certain diseases of the œsophagus, such as spasmodic stricture, are tributary to the action of cocaine, which may be applied by means of the sound, or by causing solutions to be swallowed.

As for disorders of the stomach, such as spasmodic affections of this organ with incoercible vomiting, cocaine may sometimes render marked service. Certain perversions of the stomach, and especially boulimia, are also amenable to cocaine, as Beugnier-Corbeau has shown. It is even certain that were cocaine to be bought at a reasonably low price, so that it could be afforded, one might use it to advantage in treating the agonizing pains which attend ulcer and cancer of the stomach, and this might be done by bringing solutions of cocaine directly in contact with the lining membrane of that viscus by means of the siphon tube.

The great benefit which we have derived from the anæsthetizing properties of cocaine in painful affections of the upper part of the digestive tube, has furnished us with indications for its use in certain anal affections. Obissier was one of the first to make application of this remedy in cases of anal fissure.[1] Before effecting dilatation of the sphincter, he procured complete local anæsthesia by making at two opposite points, just at the margin of the orifice, interstitial injections of two-thirds of a grain of cocaine.

You have seen me have recourse, and successfully, to the same means, and I have been able in the case of one of our patients affected with fissure of the anus, to perform forced dilatation without pain by the help of these subcutaneous injections. These injections must be made around the sphincter, and I used in the case at which you were present, four injections of a syringeful of a four per cent. solution. Lotions do not suffice, as the unsuccessful trials of Dr. Clemente Ferreira testify.[2]

You can also have recourse to cocaine in cases of painful hemorrhoids, and you may here employ suppositories containing one-third of a grain. So much for the mucous membrane of the digestive tube; we will now pass on to that of the genito-urinary organs.

It was in this hospital that one of the first applications of cocaine to the treatment of vaginismus was made. It concerned a patient in the service of our colleague Anger, and who had not been benefited by forced dilatation under chloroform. A few swabbings with a solution of cocaine, made by my interne Lejars, rendered examination easy, and removed all pain and spasm,

[1] Lermoyez: Anæsthesia by Cocaine in Amygdalotomy, Bull. de Thér., t. cviii. p. 108.

[1] Obissier: Note on the Employment of Cocaine in Fissure of Anus, Bull. de Thér., t. cviii. p. 10.

[2] Clemente Ferreira: A case of fissure of the anus treated without success by hydrochlorate of cocaine, Bull. de Thér., t. cix. p. 216.

and thereafter made sexual approaches possible, as the husband of this woman testified some weeks afterward.[1]

Almost at the same time Cazin reported to the Society of Surgery a similar case, and since then facts have so multiplied that we may now say that if cocaine does not cure vaginismus, it at any rate greatly alleviates this painful affection in rendering sexual relations possible by the help of inunctions or lotions of this alkaloid.

Gynecology has even gone further, and by subcutaneous injections and swabbings of the neck of the womb, Doleris has maintained that we may to a certain extent mitigate the pains of childbirth.

The urethral mucous membrane is also advantageously modified by the salts of cocaine. I have derived great benefit therefrom in practising cauterization of those painful vegetations which form around the meatus urinarius in females. Guyon has employed cocaine with good effect in the male, to relieve the pain and spasm accompanying catheterism.

Finally, the respiratory and nasal mucous membranes have also derived advantage from this anæsthetic action, when it has been a case of the extraction of polypi from the nose or the application of caustic solutions to the larynx. At the same time, it is necessary to bear in mind the paralyzing action of cocaine; and in a case described by Ayssaguier, grave asphyxiating phenomena were seen to follow painting the larynx with this alkaloid. In fine, to complete the subject, I must tell you that otologists have also utilized cocaine in the treatment of affections of the ear.

To sum up, whenever you desire to obtain an anæsthesia of the skin and mucous membranes which shall be complete, temporary, and of little extent, you may utilize cocaine. Are there other substances capable of producing local anæsthesia of the tissues? This is a question which the future alone can decide. For my part I have tried caffeine, and if it diminishes the sensibility of the conjunctiva, it does this very imperfectly. It has been claimed that menthol has the same effect, but the trials which I have made with this substance have not given me any satisfactory result. Cocaine remains, then, thus far the only local anæsthetic of mucous membranes, and this fact renders the introduction of this alkaloid into medicine one of the most precious therapeutic acquisitions of this age.

Since I have spoken to you of hypnotics, allow me to finish this lecture by announcing the discovery by Dr. Bardet and myself of a powerful hypnotic.

Among the different products of the great aromatic series which we are studying at the present time, in their chemical constitution and therapeutic action, is found a mixed acetone, having for formula C_6H_5,CO,CH_3; it is *phenyl-methyl acetone*, or *aceto-phenone*. This body had been already studied by Popof and Mencki, who observed that this acetone is transformed in the economy into carbonic and benzoic acids, and eliminated by the urine in the state of hippurates.

We have found in this acetone remarkable hypnotic properties; hence we propose to substitute for its compound name the shorter appellation of *hypnone*.

Administered to the adult in the dose of from two to four drops, hypnone causes sleep, and in the insomnia determined by alcoholism its effects seem superior to those of chloral and paraldehyde.

When you inject under the skin of guinea-pigs fifty centigrammes to a gramme of hypnone in a state of purity, you determine insensibility, then a comatose state, in which the animal succumbs in the course of five or six hours. Hypnone is, as you see, a body which is liquid at the ordinary temperature, having a very strong odor which resembles that of cherry-laurel, and new-mown hay; it is not soluble in water, and therefore we have given it dissolved in glycerine and enclosed in capsules.

Our patients have not experienced any unpleasant effects from it, save always the disagreeable odor of the breath which results from the elimination of the hypnone by the lungs.

What future is in reserve for this hypnotic we do not fully know, but I thought it worth the while, in concluding, to allude to this discovery which results from researches in which most of you have participated.

[1] Dujardin-Beaumetz: A case of vaginismus treated with success by hydrochlorate of cocaine, Bull. de Thér., t. cvii, p. 489.

ORIGINAL ARTICLES.

HYSTERIA IN THE MALE.

BY W. PAGE McINTOSH, M.D., M.H.S.,
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HYSTERIA is not susceptible of classification any more than is eclampsia or epilepsy. We must agree with Marshall Hall that it is not a feigned disease. It is real enough, but often exaggerated, and great difficulty sometimes attends the diagnosis.

In looking up the subject, I find very few cases reported in the male, especially in this country. Arnold,[1] Baily,[2] Beard,[3] Free,[4] and Smith,[5] have each reported a case in the United States. A number of cases have been reported from abroad. Not being able to classify the trouble, it is probably as well to follow Niemeyer, and place it under the head of neuroses of unknown anatomical origin.

Hysteria was supposed to be due to disturbances of the uterus, both by the ancients and by modern physicians to the time of Sydenham. It is now recognized that it may be dependent on a variety of causes with which that organ has no necessary connection.

Morbid nervous symptoms may be of considerable extent without ascertainable lesion: on the other hand, cases looking like hysteria may be organic, and thus diagnosis is made difficult. Among predisposing causes, the inheritance of a nervous system predisposed to degeneration, the so-called neuropathic diathesis, is perhaps the most prolific. Mental and physical exhaustion, fright, and the depressing influence of injury, or general disease, are the most frequent immediate causes. The trouble is most apt to occur at about the period of puberty, but neither age nor sex gives immunity. The frequency of hysteria in females and males respectively is said to be as

[1] Baltimore Medical Journal, 1870.
[2] London Medical News, 1832.
[3] Archives of Electrology and Neurology, 1875.
[4] Medical Record, 1884.
[5] Ibid., 1882.

twenty to one (this is probably incorrect, as we shall endeavor to prove), which circumstance is important as showing the uterine influence, and it definitely places hysteria in the category of nervous affections. Certain races are said to be more liable to the disease than others. In Europe, for instance, the Latins and Slavs are more prone to suffer, and in our country the negro race is peculiarly susceptible to it. Whether the negro is more susceptible from mental weakness and consequent excitable nature, or whether he has an unexplainable tendency to the disease, just as he has to tetanus, we cannot say. If we bear in mind the fact that the majority of negroes are uneducated, we are better prepared to accept the theory that the negro has inherited through generations the superstitious nature of some of the African tribes.

Occupation, or rather the want of it, is a prolific cause, and noticeable in all classes of society. We are led to believe, by prison authorities, that the vicious and depraved are more liable to paroxysms of a hysterical nature, and that among the inmates of such institutions it occasionally assumes an epidemic form.

Religious excitement exerts a similar influence. I have known as many as from twenty-five to fifty negroes of all ages and both sexes attacked in the course of an evening, during one of their "revivals." At such times a bucket of cold water brings them around very quickly.

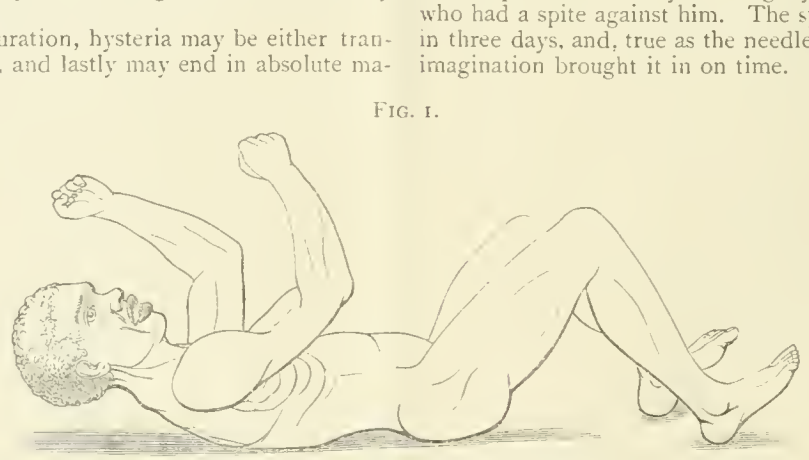
The dancing mania of the middle ages so graphically described by Hecker,[1] was, I take it, only an epidemic form of hysteria, though the author stoutly denies this.

In point of duration, hysteria may be either transient or chronic, and lastly may end in absolute mania. In the first phase it consists of an emotional explosion, and, ordinarily, at the same time the œsophagus contracts spasmodically from below upward and produces the feeling of a ball in the throat —"globus hystericus." Closely related to this, is spasmodic contraction of the diaphragm, giving pain at the pit of the stomach, spasmodic action of several groups of muscles which operate in producing complex acts, as laughing, crying, etc.; spasmodic contraction of the rima glottidis, and tension of the vocal cords, giving rise to hysterical cough; and pseudo-paralysis, in which a single extremity is involved. Hemiplegia (I have seen one such case with aphasia, in a female, lasting for months), paraplegia (I have seen one such case strongly simulating spastic spinal paralysis), and sometimes complete paralysis (Case V.) also occur.

Tendon reflexes are usually not under voluntary control, but nature seems to play tricks here also.[1]

Case I. *Violent hysteria in a male.*—Some time since, in the early fall, I was called about 4 A. M. to see Tom, a colored male, 21 years of age, stout, and previously in perfect health. He complained of intense pain in the stomach, and a few minutes after I saw him in a violent convulsion (Fig. 1). Ball of eye was fixed and turned up, muscles rigid, thumbs flexed on palms, breathing interfered with, but *glottis not closed.* Convulsion lasted a minute; he then complained of pain again; pulse 70, strong and full; temperature normal; abdomen tense; convulsion repeated in a few minutes. My first thought was strychnia poisoning, but I found on inquiry that this could not be the case, as he rested well all night. Acute indigestion and tetanus both occurred to my mind, but the absence of any wound and the clonicity of the convulsions put aside tetanus. Then I decided to treat him for cramp colic; administered a full emetic of ant. et pot. tart. and ipecac, and had him drink copiously of warm water. Nothing was ejected from the stomach except the water drunk. An injection per rectum brought away flatus and very little feces. Had another convulsion. His mind was perfectly clear, and he told me he had been "conjured" on the previous Sunday evening by an old negress who had a spite against him. The spell was to work in three days, and, true as the needle to the pole, his imagination brought it in on time.

Fig. 1.



Convulsive position; muscles in clonic contraction.

Recognizing now that I had a case of hysteria to deal with, I determined to take my time and make some observations, which I did. He had several more convulsions in the space of an hour, after which I passed a catheter and drew off about a pint of limpid urine. Ordered full dose of chloral and bromide of potassium, after which the convulsions ceased, and he slept. Ordered him ten grains of calomel to be given in a few hours.

Thursday morning, about the same hour, I was called and found him in most violent convulsions. He

[1] Humboldt Library, August, 1885.

[1] MM. P. Marie and Souza-Leite: Revue de Médecine, excerpt in Brit. Med. Journ., Aug. 22, 1885, p. 353.

had apparently done well after my visit on Wednesday. The calomel had purged him freely. I now gave him full doses of the emetics, in order to make him too sick to have convulsions. In fifteen minutes the contents of the stomach were ejected, but the convulsions continued. At this time the skin was very hyperæsthetic; the convulsions were clonic, but, at times, the muscles would remain as hard as a stone for fifteen or twenty minutes; the contour of the temporal and masseter muscles stood out in bold relief, the

FIG. 2.

Condition of opisthotonos.

angles of mouth were drawn outward, the lips apart, teeth clinched. During the convulsions he underwent very peculiar contortions, and opisthotonos developed (Fig. 2); eyes were fixed and protruding, brows wrinkled. It would occasionally require the combined strength of two men to hold him on the bed. In the interval his mind was perfectly clear, he talked rationally, laughed, sung, and prayed. He insisted that medicine would do him no good, for he was "conjured." I had resorted to the bromide of potassium, and, during the day, gave him exactly one ounce, none of which was ejected, but it failed to control the convulsions. Occasionally I anæsthetized him, which, of course, kept him quiet for the time. He had twenty-seven convulsions in twelve hours, some of which lasted half an hour.

About 5 o'clock in the evening I "suggested" to him that I would work a counter-spell and cure him. I then gave him a hypodermatic injection of morphia. He had never before seen a hypodermatic syringe, and it produced a strong mental impression. He then had only one slight convulsion, after which I repeated the injection into the arm (using very little morphia both times), and he had no more convulsions. He was well the next day, except soreness of the muscles. Occasionally he displays hysterical tendencies, but his health remains good.

CASE II.—G. M., white male, age 40 years, intelligent, educated, and no bad impulses, except a desire for women. Married, and father of six children. General nutrition good. Father, an alcoholic; one sister and one brother suffered from nerve troubles. At the time when I first saw him suffering from hysterical troubles, he was laboring under strong mental excitement; his child was dangerously ill with the croup, and I had just done a tracheotomy; the sufferings of the little one and the sight of blood were too much for him. I heard a noise, and, turning, saw him shaking and jerking, and an assistant helped him to lie down. His whole form was convulsed, and his body underwent a variety of contortions, the most peculiar of which is illustrated by Fig. 3. He had several convulsive attacks at intervals of half an hour. The trouble readily yielded to treatment.

I learned, upon inquiry, that he had had similar attacks before, and subsequently I treated him for the same trouble. At times he is free from these attacks from six months to a year, but violent excitement almost always brings them on. Sometimes he did not have attacks, but displayed the ordinary phenomena of laughing, crying, etc.

The visual field of this patient was contracted; hearing, smelling, and taste were obtunded. Hemianæsthesia to heat; the tendon reflexes were normal: he suffered occasionally from insomnia.

FIG. 3.

Convulsive position; legs and arms extended.

I saw also a brother of this man, who for two months lay in bed, making no attempt to get up, neither would he speak, but lay with eyes protruding and pupils dilated (except when asleep); he made no attempt to turn himself in bed, but would allow others to handle him without resistance. He only ate food or took medicine when it was put in his mouth. No lesion was discoverable, and he made a perfectly good recovery. This case I saw in consultation, and I believe it has been reported.

Case. III. *General hysterical hyperæsthesia in a male aged fifty years.*—I am at liberty to give only general symptoms in this case.

Other members of the family had suffered from nervous trouble. His sister was hysterical, and occasionally suffered with excessive hyperæsthesia. Patient's wife had suffered similarly, which fact seemed to make a strong mental impression on him. Personally he was strong, well built, decided tendency to obesity, had always enjoyed good health, except occasional rheumatism in ankle-joint. When I saw patient he was under treatment for felon of finger: there was apparently no other lesion, but he would complain greatly if any one touched him, and if a hand was laid upon his leg or thigh, he would yell most lustily. He kept this up several days, never being touched without hallooing. To test him, the physician in attendance and myself discussed the feasibility of applying the actual cautery to his back and feet. This conversation was conducted where he could hear it. One of us would seemingly demur, saying it would be very painful, etc.

At our next visit, twelve hours later, he allowed us to handle his limbs without complaining. Expressed himself as being much improved, and in a few days the hyperæsthesia disappeared, and he was up and went home, a distance of fifty miles. The travel on the railroad did not unpleasantly affect him.

Case IV. *Ordinary hysteria in white male, aged twenty-five years.*—I was well acquainted with the history of this young man, and knew that he had been recently disappointed in love. When I saw him he was inclined to be affectionate and wanted to embrace me. As I declined the proffered honor, he became very angry and began to cry, then to laugh; later he became very much depressed and wanted chloroform, with which to commit suicide; he tried several times to throw himself out of the window, talked incoherently, and cried and laughed constantly, had convulsive movements, but no defined aura. This, with a variety of silly acts, continued for twenty-four hours. Patient was temperate, healthy, and ordinarily intelligent.

Case V. *Complete paralysis, with aphasia in colored man, aged thirty-eight years.*—I recently saw in consultation with Dr. Pate, of this city, a man who had previously enjoyed good health. He was apparently completely paralyzed and could not talk. His pupils and tendon reflex were normal, neither hyperæsthesia nor anæsthesia present. Patient entirely recovered both voice and use of limbs in a few days, and seems to continue in good health.

The cuts were taken from life, by my brother, Dr. M. C. McIntosh, who saw the cases.

Memphis, October 15, 1885.

PRELIMINARY NOTE ON ADONIDINE.

By J. C. WILSON, M D.,
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The *Adonis vernalis*, a plant belonging to the natural order Ranunculaceæ, and indigenous in Southern Europe, has long been empirically used in Russia in various affections, and especially in diseases of the heart. Rubnow, of St. Petersburg, in 1879, first made the medicinal properties of this plant the subject of special research. In 1882, Cervello, of Strasburg, succeeded in isolating its active principle. The results of his investigations were published in the *Archives Italliennes de Biologie*, toward the close of the same year. From this date the remedy excited much interest among the physicians of Russia and Germany. In 1884, Lesage[1] made public the results of physiological studies concerning its properties, conducted in the clinical laboratory of Germain Sée, at the Hôtel Dieu. Quite recently Durand,[2] at the suggestion of Desplats, has made a careful clinical study of the therapeutic action of this substance.

The older preparations were made from the root and leaves of adonis. Rubnow employed an infusion and maceration of the leaves, and an extract has also been used. The active principle of these preparations is the glucoside, isolated by Cervello. This substance is amorphous, colorless, without odor, intensely bitter, slightly soluble in ether and water, and freely so in alcohol. Rubnow employed the leaves in infusion of a strength of 4 to 8 parts to 180 parts of water. The dose of this preparation is a tablespoonful every two hours. Durand employed the glucoside in pills of 0.02 centigramme (one third grain) each, and rarely exceeded this dose.

The physiological effects are analogous to those of digitalis. Cervello, experimenting on frogs, found that 15 milligrammes (one-fourth grain) were sufficient permanently to arrest the heart. According to him, adonidine should be employed in a smaller dose than digitaline. The dose used by Durand is enormously greater than this. Its administration is followed by a series of phenomena which represent three well-characterized phases. First, slowing of the pulse, with elevation of the arterial pre-sure; second, increased frequency of the pulse, with still further augmentation of blood-pressure; third, still further increase of pulse-frequency, with decline of blood-pressure. Adonidine appears to be without cumulative effect. A patient of Durand's, aged 14 years, took by mistake, in the course of a few hours, 0.20 centigramme (three grains), of adonidine without serious results, other than repeated vomiting and diarrhœa. All observers agree that this remedy, while producing effects closely analogous to those of digitalis in other respects, is without cumulative dangers. Leublinski alone, among those who have used it, finds adonis badly borne, giving rise to vomiting and diarrhœa.

In addition to its action upon the heart, adonidine possesses, in a high degree, diuretic properties. Michaelis has reported a case, in which digitalis having failed to augment the volume of urine, the administration of adonis was followed by an increase of thirty per cent. Altmann, Leyden, and Riegel have also testified to its diuretic properties.[3]

Durand, as the result of careful, systematic clin-

[1] Travaux du laboratoire de clinique de M. G Sée, l'Hôtel-Dieu, Bulletin de la Société de Biologie, 1885.
[2] De l'action comparée de medicaments cardiaques, Paris, 1885.
[3] Semaine Médicale, June, 1884.

ical investigations in five cases, affirms that adonidine, in one-third grain doses, augments the arterial tension, regulates the action of the heart, diminishes the frequency of the pulse, and increases the energy of the cardiac systole. Furthermore, it rapidly induces diuresis. Its effects are prompt, it is well borne, and the indications for its employment are the same as those of digitalis, without the dangers of the latter drug.

As the result of extended comparative studies of the clinical effects of this remedy, and of those of digitalis, caffein, and convallaria, Durand concludes that, notwithstanding the dangers of digitalis, which render necessary both skill and caution in its employment, it must be assigned the first rank among cardiac stimulants; that caffein is indicated in those cases requiring a more prompt effect; and that convallaria has the advantage of producing more persistent diuresis. Convallaria is to be preferred to digitalis, where the stomach is irritable; caffein, in nervous and easily excitable individuals. Although convallaria and caffein are more prompt in their action upon the kidneys, their influence upon the heart's action is less decided than that of either digitalis or of adonidine.

These observations make more extended studies of the action of adonidine desirable. The drug is on the list of Merck, of Darmstadt, and may be had in this city of Louis Genois, apothecary. Its present price is too high to warrant its general use. But, should the observations thus far made be established, it will take permanent place among the available agents in cardiac therapeutics, and an established demand will beget a sufficient supply at reasonable prices, for the Adonis vernalis is by no means rare, its rhizome having been employed in commercial black hellebore as an adulterant, and the process by which the glucoside adonidine is extracted being not necessarily expensive. The glucoside, as at present supplied by Merck, does not in all respects correspond to the description of Durand, being of a dark brown color. In a case under the care of the writer, of old mitral insufficiency, with dilatation, feeble and irregular pulse, œdema of the legs and feet, with diminished, albuminous urine, in which digitalis could not be used, adonidine in doses of one-third of a grain, *quatuor in die*, had an excellent effect both upon the circulation and upon the action of the kidneys.

CLINICAL NOTE ON THE USE OF ANTIPYRIN.[1]

BY W. M. WELCH, M.D.,
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DURING the past year attention has been repeatedly called by the medical journals, both domestic and foreign, to antipyrin as an antipyretic. The credit of discovering this new drug belongs to a chemist by the name of Ludwig Knorr, an assistant in the chemical institute at Erlangen, Germany. The discovery is said to have been made synthetically, and the new product was named, chemically, dimethyl-phenyl-oxypyrazol. The name antipyrin was given to the preparation by Filehne, of Germany, who was the first to experiment with this drug and prove its antipyretic power. After it had been subjected to extensive trials in the hospitals of Germany, and received the endorsement of such men as Filehne, Huchard, Guttmann, Pribram, and some others of equal reputation, it was brought to this country, and a large number of practitioners here have already testified to its prompt and wonderful antithermic effect in various febrile and inflammatory diseases.

While Knorr bears the reputation of being a scientific chemist, he has resorted to the ordinary business expedient of an empiric, in procuring a patent for antipyrin. In palliation of this act, it is claimed that it was not his intention to place on the market a secret nostrum, but rather to secure to himself the sole right to manufacture a drug which he himself had discovered. The formula, however, is said to have been published in several languages. The specifications which were filed at the United States Patent Office, October 28, 1884, when a patent from this country was obtained, have been published by Dr. Samuel S. Adams, of Washington, in the *Journal of the American Medical Association* for December 5, 1885. But, whatever may be thought of Knorr's course in this matter, the drug is, nevertheless, of so great interest from a therapeutical standpoint as to be worthy of our attention.

Antipyrin, a faintly yellow and slightly bitter powder, somewhat resembles sulphate of cinchona in appearance and taste, and is very soluble in water. The dose recommended in nearly all of the journals is from 10 to 30 grains. This may be repeated until 60 grains shall have been taken, which amount it is not well to exceed during one day. In typhoid fever, however, it is said that much larger doses may be given with impunity. Filehne gave it in 30 grain doses, repeated every hour until 75 to 90 grains were given. It is recommended that the dose to phthisical and emaciated persons be much smaller, even as small as 2 to 4 grains, and increased if necessary. For children, one grain and a half for every year of the child's age, and repeated every hour, if required, is believed to be the proper dose.

Antipyrin is, without question, a most remarkably prompt and powerful antipyretic. It has no value as an antiperiodic. It has been especially recommended to reduce high temperature in typhoid fever, tuberculosis, and pneumonia. It has been known to cause a reduction of febrile temperature amounting to four or five degrees within two hours after its administration; and, according to some observers, the reduction continues for several hours. Dr. Huchard says that the antithermic effect is ordinarily maintained for from six to nine hours, and is sometimes perceptible on the following day. Reduction of the concomitant symptoms of high temperature, such as delirium and rapidity of pulse and respiration, does not always correspond with the degree of reduction of the temperature, though it has been asserted that such a correspondence exists.

The only unfavorable results upon which stress has been laid are occasional vomiting, and the production of an exanthematous eruption resembling

[1] Read before the Philadelphia County Medical Society, December 16, 1885.

measles. Collapse, proving fatal, is reported as having occurred in one or two instances. Some doubt, however, has been expressed as to whether the collapse in these cases was distinctly due to the drug. Be that as it may, it certainly is advisable until we know more of this agent, to exercise great caution in its use, especially in cases of cardiac weakness.

My experience in the use of antipyrin is limited to but one patient, and a single dose. Having under my care in August, of this year, a case of typhoid fever, in which the temperature continued high during the fourth week of the disease, I determined, with the consent of the consulting physician, to try antipyrin, the temperature (axillary) at that time, August 17th, being 104°, the pulse 130, and the respirations about 40. The patient was an adult female. Only 10 grains of the drug were administered in solution at 3.15 P. M., and the results were as follows:

4.15 P. M., temp. 101½°; resp. 33; pulse 125.
5.15 P. M., temp. 99⅕°; resp. 35; pulse 116.
6.15 P. M., temp. 100⅕°; resp. 36; pulse 112.
7.15 P. M., temp. 103°; resp. 31; pulse 118.

On the following day the temperature ranged between 103⅔° and 104⅕°; the respirations varied from 30 to 48, and the pulse fluctuated between 126 and 140. The patient died on the 22d, death being preceded by an increase of the nervous symptoms, incessant delirium, great tympanites, involuntary evacuations, and well-marked hemorrhage from the bowels. The temperature, on the day of dissolution, rose as high as 107½°, and at the moment of death was 106⅔°. There was no autopsy.

In this case it is seen that a single 10 grain dose of antipyrin caused a reduction of temperature in two hours amounting to four and four-fifths degrees. The concomitant symptoms (rapid pulse and respiration) did not show anything like a corresponding reduction.

While under the influence of the drug the patient's condition was very peculiar. There were restlessness and sighing, and the most profuse perspiration, I think, I have ever witnessed. The pulse was rapid, irregular, and feeble. The face and hands exhibited a peculiar pallor, and there was profound systemic depression. If there were any change in the delirium it was increased. Altogether the patient, at the end of two hours after swallowing the drug, presented such marked symptoms of approaching collapse that I became alarmed, and procured and administered as quickly as possible carbonate of ammonia and whiskey. It is proper to state that there was no nausea or vomiting.

It is evident, from the clinical history of this case, that a forced reduction of temperature in typhoid fever is not necessarily attended with the desired amelioration of the other symptoms of the disease. Nor is there, to my thinking, any reason to expect such a result, so long as the antipyretic does not change the condition or conditions upon which the fever depends. I do not wish to be understood as wholly denouncing antipyretics in diseases of high temperature, for I believe that they have a certain limited measure of usefulness; but I am of the opinion that, in the treatment of fevers of late years, too great prominence has been given to measures which combat a single symptom, and thus attention to a great extent has been directed from the morbid processes giving rise to that and the other symptoms, which, together, instead of constituting the disease, simply give expression to it. It is like attempting to remove a shadow without disturbing the substance which produces it.

My object in presenting this communication is not to speak disparagingly of antipyrin as an antipyretic, but to call attention to the fact that it may produce unfavorable and alarming symptoms, even when given in what is generally believed to be the minimum dose; and that, in large doses, there is danger of fatal collapse.

MEDICAL PROGRESS.

CHIENE'S CONTRIBUTIONS TO PRACTICAL SURGERY.—PROF. JOHN CHIENE, in an admirable series of practical notes on every-day surgery, makes, *inter alia*, the following suggestions:

In wounds of the face, the best stitch to use is horsehair. Unless the wound is of considerable size, no form of drainage is necessary. The best dressing is a pad of salicylic cotton-wool or corrosive wool, fixed in position with flexible collodion.

The introduction of the sharp spoon into surgical practice has greatly simplified the treatment of lupus. In the use of the sharp spoon, special care must be taken to scrape away the raised edges of the lupoid ulcer, as it is here that the pathological change is advancing. This is best done by scraping from the sound skin toward the centre of the ulcer. After the new formation is completely removed, the best application is a powder which has been introduced into surgical practice by Dr. Lucas Championnière, of Paris. It consists of (1) light carbonate of magnesia, which has been impregnated with the vapor of eucalyptus, (2) powdered benzoine, and (3) iodoform in equal quantities.

In persistent hemorrhage from the nasal cavity, plugging of the posterior nares should not be done until an attempt has been made to check the hemorrhage by firmly grasping the nose with the finger and thumb, so as completely to prevent any air passing through the cavity in the act of breathing. This simple means, if persistently tried, will in many cases arrest the bleeding. The hemorrhage persists because the clot, which forms at the rupture in the bloodvessel, is displaced by the air being drawn forcibly through the cavity in the attempt of the patient to clear the nostrils. If this air is prevented from passing through the cavity, the clot consolidates in position, and the hemorrhage is checked.

In the reduction of a dislocation of the lower jaw, the patient should be seated on a low stool before the surgeon. In this way the surgeon gets a sufficient leverage, standing above the patient, and the reduction of the dislocation is simplified.

In the division of a tight frænum of the tongue, when a child is tongue-tied, care must be taken not to use the scissors too freely. All that is necessary is, standing

behind the patient, to nick the anterior edge of the frænum with the scissors, and to tear with the finger-nail the remainder of the band. In this way hemorrhage, which is apt to be troublesome, is prevented.

In the removal of an elongated uvula, after you have grasped the apex of the uvula, it is to be drawn forward and rendered tense before division. If it is simply grasped, and an attempt made to divide it in its normal position, it is not always an easy matter to effect the object desired. When it is rendered tense the operation is a very simple one.—*Edinburgh Medical Journal*, Dec. 1885.

NERVE-STRETCHING.—CHAUVEL, in a recent *résumé* of our existing knowledge of effects of nerve-stretching, and the indications for this procedure, maintains that, although the physiological aspects of this treatment are but imperfectly understood, the operation itself is one which should take rank in surgery beside the section and resection of nerves. It is indicated:

1. In rebellious peripheral neuralgias; and is here preferable to all ordinary treatments.
2. In contractures and in peripheral paralyses, especially of traumatic origin.
3. In the anæsthesia of leprosy.

Its efficacy is more than doubtful in tetanus, in locomotor ataxia, and in affections of the medulla. Its use should apparently be abandoned in all cases of atrophy of the optic nerve, of whatever nature or degree.—*L'Abeille Médicale*, Nov. 30, 1885.

STRYCHNIA IN ACUTE ALCOHOLISM.—DR. LARDIER has long employed strychnia in the treatment of delirium tremens, and regards it as the best remedy which we possess for this condition—as, in fact, a veritable specific. He insists upon the necessity of giving the drug in large doses. In one case he had given granules containing each $\frac{1}{18}$ grain every two hours for several days without any appreciable result. He then increased the number of granules and also administered the drug hypodermatically, giving in all $1\frac{2}{3}$ grains in the space of twenty-three hours. The result was a most happy one. The patient soon fell into a refreshing sleep, never exhibiting the slightest symptom of strychnia poisoning.—*The Practitioner*, Dec. 1885.

CARBON DISULPHIDE IN NEURALGIA.—GUERDEN recommends, as far superior to the menthol pencil in neuralgia, the application, for three minutes, of:

Carbon disulphide (rectified)	9 parts.
Essence of mint	1 part.

Shake well.

In superficial neuralgias, whether facial, dental, or intercostal, and in superficial rheumatic pains, this application produces instantaneous relief, and not unfrequently a cure. In the deep neuralgias, as sciatica, it is necessary to project the solution upon the painful part by means of an atomizer. Actual freezing of the skin is unnecessary. Dental neuralgia usually succumbs to this treatment applied to the corresponding cheek—a slight application to the gum, or the insertion into the carious tooth of a pledget of cotton moistened with the solution being occasionally advisable. Very obstinate facial, dental, and pharyngeal neuralgias may be subdued by gently introducing into the external auditory meatus a pledget thus moistened, squeezed out, and covered by a layer of dry cotton.—*Revue de Thérapeutique*, Dec. 1, 1885.

VAGINAL DRAINAGE IN THE TREATMENT OF UTERINE CANCER, AS A MEANS OF PREVENTING THE DEVELOPMENT OF THE CHARACTERISTIC ODOR.—WYMAN states that in those of his cases of uterine cancer in which arrangement has been made for the drainage of the vaginal fluid, there appears a marked improvement, both as regards the health of the patient and the abatement of the offensive odor characteristic of the disease.

One would, on first thought, regard the vagina as sufficiently patulous to permit the ready exit of any contained fluid, but it is found, clinically, that considerable quantities of fluid often escape from the vagina during a digital examination, even though the patient has been standing or walking for several hours. Wyman, therefore, recommends the constant retention in the vagina, in these cases, of a tube, which shall keep the vaginal orifice open and the fourchette sufficiently low to permit the removal by gravity of the offensive secretions, which, on their escape, are collected by absorbent cotton, which is frequently burnt and replaced.—*The Medical Age*, Nov. 25, 1885.

MORRHUOL, THE SUPPOSED ACTIVE PRINCIPLE OF COD-LIVER OIL.—By the evaporation of an alcoholic extract of cod-liver oil, CHAPOTEAUT has produced a substance for which are claimed all the active virtues of the original oil, the bulk of which is but one-twenty-fifth that of the latter.

According to TAPAGE, this extract is quite efficacious in the first stage of phthisis, and can be taken for months in large doses without occasioning digestive disturbances. It is well borne by infants, and has been used with good results in strumous and rachitic conditions.

Its chemical constitution is quite complex, consisting in large part of phosphorus, iodine, and bromine, apparently in organic combination.—*L'Union Médicale*, Dec. 5, 1885.

THE DANGERS OF COCAINE.—DR. HODGES, of the Leicester Infirmary, writes as follows to the London *Lancet* of December 12, 1885: Professor Hirschberg, of Berlin, (whose admirable clinic I have lately visited) uses cocaine dissolved in solution of perchloride of mercury (1 in 5000), and has had no cases of septic inflammation following its use. To the list of disastrous cases recorded by Mr. Nettleship, Dr. Bell Taylor, and others, I have one to add, which occurred when I was using the ordinary solution of cocaine in distilled water.

TURPETH MINERAL IN SYPHILIS.—As a local application in certain syphilitic affections of the skin, MAURIAC advises the use of the following pomade:

Turpeth mineral	2–3 parts.
Lard	30 parts.

This is applied in the various impetiginous eruptions of the hairy portions of the skin, and to the persistent spots on the face, hands, and wrists, and is gently rubbed for five minutes up to the point of slight irritation. In the same manner are treated the minute

papules of the nasal alæ, of the labiomental fold, and of the labial commissure.—*L'Union Médicale*, Dec. 12, 1885.

Heredity in Bright's Disease.—Baudet published some time ago a study of three cases of nephritis occurring in the same family, from which he was led to the belief that the disease might in certain cases be hereditary. This hypothesis has received a certain measure of confirmation from another series of cases published by Kidd (*Ann. de la Société de Méd. d'Anvers*, 1885), in which, out of the twelve children of a female suffering from Bright's disease, seven died of the same malady.—*Florida Med. and Surg. Journ.*, Dec. 1885.

The Relation Between Inflammation of the Gums and Disease Elsewhere.—The origin of the various skin eruptions, vomiting, convulsions, diarrhœa, and constipation, so frequently found to be coincident with the process of dentition in children, is, in the opinion of Kaczorowski, to be sought less in the condition of the teeth than in that of the gums. The author, impressed with the idea that the essence of most inflammatory processes consists in an infection by microparasites, proceeded to treat the swollen gums and cavity of the mouth with a solution of tincture of iodine in common salt (chloride of sodium, 1 per cent.; tr. iod., 0.5 per cent.). A half to a teaspoonful of this solution, according to the age of the child, is applied every quarter or half hour. He found that, simultaneously with the paling of the gums, the concomitant catarrh of the respiratory and digestive mucous membranes, the feverishness, and reflex nervous phenomena came to an end, without the use of other means than a simple purgative. Further observations of this connection between diseases of the gums and other affections, led the author to apply the same treatment to adults. That the cavity of the mouth, which is the great entrance gate through which organisms find their way into the body, should be first attacked by them is not surprising; swollen gums form a suitable nidus for their development. A receptive state of the mouth is produced in children by the mechanical injury done to the gums by hard teething rings, and in adults by artificial teeth, plates, and the like, and by chemical substances. But the greatest share in the process is played by the teeth. They irritate mechanically when they are decayed, chemically when they are foul, and functionally during their eruption.—*Manchester Medical Chronicle*, December, 1885.

Salicylate of Soda in the Treatment of Confluent Variola.—At a recent meeting of the Bordeaux Medical and Surgical Society, M. Saint-Philippe presented a report on the use of sodium salicylate in sixty cases of variola. Under the influence of this antithermic and germicidal agent, he has observed fall of temperature and diminution in the frequency of the pulse, the reappearance of calmness, appetite, and sleep. The pathological action of the skin is modified, and on the twelfth or thirteenth day the pustules become dry. It is given from the first appearance of the eruption, in syrup, in doses of 90–120 grains for an adult, and 60–90 grains for an infant. The only observed ill-effect is a temporary anorexia. Cutaneous lotions of the salicylate in ten per cent. solution, rapidly abort the pustules, but may be followed by numerous extremely painful abscesses.—*L'Union Médicale*, Dec. 12, 1885.

Influence of Acute Febrile Diseases on Pregnancy.—Hofmeier (*Zeitschrift f. Geb. und Gyn.*, XI. 2) formulates as follows our present knowledge of this subject:

The gravida, when an acute febrile disease is superadded to her condition, is not more endangered than is a non-gravida affected by the same disease; except when the fœtus, in consequence of the mother's sickness, dies, and abortion or premature labor occurs during the course of the febrile disease. Rarely will the life of the fœtus be endangered through the sickness of the mother. Variola is the best known exception to this statement. It is the rule, however, that the fœtus rarely dies directly from the acute disease affecting the mother. Its death, when it occurs, is probably rather due to the effects of the maternal high temperature. A further cause, according to Slavjansky, applicable especially to cholera, is the occurrence of a metritis decidua hemorrhagica.

As a contribution to this subject, Hofmeier reports two very carefully observed cases. The one concerns a patient of twenty-seven, mother of four children, five months pregnant, who convalesced well from a severe pneumonia, went to term, and was delivered of a healthy seven-pound fœtus. This case tallies with the conclusion reached by Ricau, who found that pneumonia, attacking a patient less than 180 days gravid, was not especially dangerous to either mother or child. His figures are: of 28 cases of pneumonia, in patients gravid less than 180 days, 23 recovered (6 miscarried, 17 did not, and 5 died); whilst of 15 cases beyond 180 days, 8 recovered (5 with and 3 without miscarriage), and 7 died. The second case is of erysipelas migrans during pregnancy, and Hofmeier could not find a parallel case in literature. The case is further interesting from the observations made as to the effect of the maternal temperature on the fœtal pulse, as shown in the annexed table:

Mother's temperature.	Fœtal heart.
40.5° C. = 105° F.	180.
40° C. = 104° F.	160.
38° C. = 100° F.	140.
37.5° C. = 99° F.	132.

The patient was at the end of pregnancy, did not abort, but at the end of the fever gave birth to a healthy fœtus, with no sign of desquamation. The patient's lying-in period was in every way favorable, and this in spite of the belief in the homogeneity of the erysipelas and puerperal fever coccus. The patient was delivered in the same bed and ward in which she lay sick with erysipelas, and an abscess over the sacrum (the result of erysipelas) was still discharging pus.—*American Journal of Obstetrics*, Dec. 1885.

Salix Nigra as a Sexual Sedative.—Dr. F. T. Paine, in the *Report of the Texas State Medical Society for 1885*, records the successful use of a fluid extract of Salix nigra (aments), or floral buds of the common Southern willow tree, in numerous cases of sexual erethism.

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SATURDAY, JANUARY 2, 1886.

THE COLD BATH IN TYPHOID FEVER.

THE question of the utility of the cold bath in typhoid fever is not yet settled, even in Germany, where the brilliant statistics of Brand and Liebermeister have resulted in the introduction of hydrotherapy into most of the large hospitals. As a routine measure, the system has not found favor in the eyes of English and American physicians, among whom Cayley, at the London Fever Hospital, seems to have been the only one who has tested the plan on a very large scale.

In the *Berliner klinische Wochenschrift*, Nos. 45 and 46, 1885, SENATOR discusses the cold-water treatment, and brings forward evidence to show that equally good results may be obtained without it. Undoubtedly during the past twenty years, since the introduction of hydrotherapy, the mortality from typhoid fever has been greatly reduced in German hospitals, but statistics comparing this with previous periods are manifestly unfair. Other important conditions must be taken into consideration, such as the nursing, the attention to diet, and the general hygienic surroundings, and to the improvement in these Senator is inclined to attribute an important share in the reduction of the death rate. Gläser's statistics from the Hamburg General Hospital, for 1874–77, show the same mortality, 7.2 per cent., in 937 typhoid patients treated by the ordinary methods, and 868 patients subjected to the cold bath.

As a further contribution to the solution of the question, Senator has instituted a comparison between the results of the treatment of typhoid cases in the eight large hospitals of Berlin, for the ten years 1875–84. Of these he excludes three, the Charité and the two city hospitals—Friedrichshain and Moabit, as the patients admitted to them are from the very poorest classes; while in the Hedwig's, Elizabeth, Lazarus, Bethanien, and Augusta hospitals the conditions are very similar, and the patients are drawn from the better classes of the poor. In the three large hospitals, the Charité, Friedrichshain, and Moabit, the average mortality of typhoid cases for the ten years was 16.4 per cent., 19.6 per cent., and 15.2 per cent., respectively. In the others, which are smaller institutions, the death-rate was considerably lower, as shown by the following figures: Hedwig's, 14.7 per cent.; Elizabeth, 12.8 per cent.; Lazarus, 14.1 per cent.; Bethanien, 13.5 per cent.; and Augusta, 12.3 per cent. In the last named institution, Senator has charge of the medical wards, and he takes pains to show that the low mortality is not due to any favoring conditions of age, sex, or rank of the patients. As regards treatment, he has followed an expectant or symptomatic plan, while in the other four hospitals the cold bath has been used to a greater or less degree; in none, perhaps, to the extent which Brand directed, though in the Bethanien, the system has been quite thoroughly enforced.

A comparison of the statistics of the five hospitals shows that the percentage of recoveries "has not been essentially influenced by the different special treatments in vogue." At the Augusta Hospital, no regular antipyretic method is employed; that is to say, the patient does not receive antipyretic treatment when the fever reaches a certain height, but the indication is always drawn from the general condition. The fever has not, as a symptom, the significance that Liebermeister and others suppose, and the changes in the nutrition of the organs do not depend on the high temperature alone. A study of tetanus teaches us that high temperature and the febrile process are two different things. Senator is not opposed to the cold bath; he believes that it has its uses, but as an antipyretic he places it far below quinine or antipyrin, which have also the advantage of being antiparasitic remedies. The bath does good, not so much by reducing the fever as by its action upon the nervous system: under its use the patient's mind becomes clearer and brighter; and another beneficial effect is upon the circulation and respiration, to both of which it is a powerful stimulus. If a rule is to be adopted, it should be that the cold bath is specially indicated in those cases with fever, stupor, and mental dulness—the febris nervosa stupida of the old writers. Statistics show very clearly that hemorrhage from the bowels is more likely to occur in this cold method of treatment, and that relapses are not more frequent.

In the discussion which followed the reading of Senator's paper at the Berlin Medical Society, GOLTDAMMER, of the Bethanien, spoke of the difficulty of forming a clear judgment concerning therapeutic measures in typhoid fever. So many factors have to

be considered, of which the treatment is, perhaps, not the most important. The nursing, the relative proportion of light and severe cases, and the time of entrance into the hospital influence the mortality to a very great degree. Thus, of the 3600 typhoid patients treated in the Bethanien during 17 years, the total mortality was only 12.8 per cent., but of the patients admitted in the third week, or later, the death-rate was 36 per cent. Goltdammer referred to the statistics of the Prussian army as illustrating the value of the cold bath in typhoid fever. Prior to 1865, the death-rate from this disease ranged from 20 to 25 per cent., but for the past nine years the mortality has been only 10.1 per cent. In the other European armies Brand's system is not fully carried out, and the death-rate still remains high, being 25 per cent. in the Austrian army, 28 to 36 per cent. in the Italian, and 36.5 per cent. in the French.

In hospital practice, the truth would seem to be that of 100 typhoid patients 75 will do well with careful nursing; of the remaining 25, from 10 to 15 will die under any method of treatment, while the fate of the remainder will depend very much on the skill with which the physician handles the therapeutic means at his disposal, of which, in certain cases, the cold bath is one of the most valuable.

THE LAST LYONS FORCEPS.

Probably about a hundred years after the invention of the obstetric forceps by the senior Dr. Peter Chamberlen, Jean Palfyn, in 1723, presented to the Paris Academy of Sciences his obstetric forceps with parallel blades, and the instrument became known as the Hands of Palfyn. But about this time a knowledge of the Chamberlen instrument, so long kept secret by the inventor and by his family, became general, and for nearly a hundred years various modifications of this forceps, with handles crossing and locking, were made, while no important change was made in that invented by Palfyn, the idea involved in it being for a long time entirely lost sight of.

In the early part of the present century, however, Thenance invented a forceps with parallel branches, an instrument which, according to Tarnier, is still very much employed in a part of France, and is known by the name of the "*forceps Lyonnais.*" Valette, of Lyons, also devised a forceps in which the branches were parallel instead of crossing. Another instrument, similar as to the branches being parallel, was the leniceps of Mattei. The inventor, accepting the derivation which most obstetricians have given of the word forceps, viz., *fortiter capiens*, seizing strongly, called his instrument *leniter capiens*, seizing gently. Here, by the way, is an error which it is worth while to correct. The use of the word forceps by the Latin poets, Virgil and Ovid, for example, points very clearly to the fact that they meant by this term an instrument for seizing hot metal, and, therefore, the derivation is from *formus* hot, and *capiens*, or *capere*. Chereau has also shown that Festus used the word *formucapes* as a synonym for *forcipes*, the plural of forceps.

Following the examples of Thenance and Valette, Chassagny, of Lyons, whose method of applying mechanical traction to the forceps is so well known to obstetricians, and so generally rejected by them, has recently shown at Paris a new forceps of his device with parallel branches, and thus we have another Lyonnaise forceps.

A description with a woodcut of this forceps is given in *L'Union Médicale* of November 21st. The part of the branch applied to the fœtal head has the usual ellipse form, and also the pelvic curve, but the branches, after the formation of this part, instead of crossing in order to form the articulation, change their direction, diverging to the right and to the left, and at the end the handles are about six inches apart, but articulate by means of a cross-bar. Chassagny holds that the crossed forceps makes, at the end of the blades, an open V, the apex of this triangle being at the articulation, while in his instrument the blades form an inverted Λ, with its summit at the ends of the blades. Now, when the fœtal head enters the V of the crossed forceps, the blades being rather deep in the pelvis, the sides of the inferior part of the ellipse cannot be brought closer without slipping until the ends of the blades are spread out like a fan, and there is gliding caused by pressure. As the size of the fœtal head increases, this gliding becomes greater, and the head enters proportionately less in the ellipse. Hence, this forceps is least adapted for the delivery of the head the more it is needed, for large heads are a frequent source of dystocia.

On the other hand, the branches of the new forceps, either in withdrawing from, or approaching to each other, always remain nearly perfectly parallel.

The pressure which the crossed forceps exerts upon the head is always oblique, from below upward, and drives the head further toward the points of the blades, where it is arrested by the increased curvature of the latter; in spite of firmly grasping the handles, this gliding occurs when traction is made, and then the middle part of the blades is separated from the head, which is held only by their ends.

The new forceps, according to Chassagny, holds the head more firmly, less pressure is required, and its blades, embracing a greater extent of surface, are less likely to do injury.

Experiments made with the two forceps, in the delivery of an artificial head through a pelvis, with each of its diameters lessened about four-tenths of an inch, showed that more than twice as much force

was required with the crossed forceps to extract the head than when the extraction was made with Chassagny's instrument.

The author states that these theoretical views, as well as experimental proofs, are fully confirmed by many cases in practice. In all the applications of the forceps, even in those terminated by considerable manual or mechanical traction, the instrument leaves but insignificant or transitory traces upon the head of the infant. These traces are at their maximum on the parts of the head corresponding to the middle part of the blades, and at their minimum, or entirely absent, at those parts corresponding with the ends of the blades.

It is hardly necessary to state to those who know his views as to the importance of mechanical traction in forceps delivery, that the woodcut of his new instrument shows places for the attachment of traction cords.

Velpeau once remarked, half in jest, we think, that when a man did not know how to use the old forceps, he invented a new one. This criticism cannot, however, be applied to Chassagny, whose ability and fame as an obstetrician are great. Whether his new instrument will prove an important contribution to obstetric progress, time and a larger experience must decide.

ANALGESIA FROM LOCAL IRRITATION.

SEVERAL years ago, Brown-Séquard discovered that a more or less complete analgesia of all parts of the body could be induced by stimulating the mucous membrane of the larynx, and he showed, moreover, that the phenomenon was the result of an inhibition influence upon the nerve centres, conveyed through the superior laryngeal nerve, and that it could be produced either on the whole body or upon only one side.

He has recently communicated to the Academy of Sciences of Paris the results of additional investigations on the subject, made chiefly upon dogs and donkeys, in which latter animals the condition is readily induced and is long continued. The mucous membrane of the larynx is the region in which stimulation is most certain to be followed by analgesia. The best stimuli are chloroform and carbolic acid, but the vapor of the former must not be allowed to reach the lungs. Twelve or fifteen drops of a ten per cent. solution of cocaine, injected into the mucous membrane, produce the same effect. Other less effectual means are galvanization of the superior laryngeal nerves, cauterization of the mucosa, the insertion of a tube or the finger in the larynx, tracheotomy, or a simple incision in the skin of the neck. This laryngeal irritation will sometimes produce such absolute analgesia that large nerve trunks may be cut, deep cauterization made, or the strongest galvanic currents applied without causing in the animal any signs of pain. The tactile sensation remains, and the muscle sense is not affected. The effects are best produced in animals after tracheotomy, as the larynx can then be manipulated freely and there is no danger of the chloroform vapor or the carbolic acid reaching the lungs.

It is difficult to induce similar effects in man, but Brown-Séquard has succeeded, by causing a person to inhale pure air the first two-thirds of the inspiratory act and carbolic acid vapor during the remaining third. At first the glottis closes during the inhalation, but the sensibility of the mucous membrane gradually diminishes and the vapor can then be readily inspired. Sometimes the analgesic effects are rapid, but the inhalation must be kept up, as a rule, for at least twenty minutes. The duration of the analgesia may be forty hours, and for so long a period as two days there may be complete abolition of pains produced by various causes.

We trust that these remarkable results will be confirmed, for they seem to indicate a wide range of usefulness for this curious inhibition effect, if we can secure a convenient and harmless mode of irritating the terminal filaments of the superior laryngeal nerves.

IODAL AND IODOL.

BELIEVING that iodal would be a useful substitute for iodoform as a local application, that it would be free from the disagreeable odor of the latter, and that it would have a very decided anæsthetic effect, we have endeavored for more than a year to obtain it for trial. A few weeks ago we received from a drug importing house a substance marked iodol, which at first we supposed to be that which we had sought, only having a new name. The mistake, however, was soon discovered, for iodol proved to be a new substance first made by DRS. SILBER and CIMAICIAN, of Rome; chemically it is tetra-iodo-pyrrhol, and this has been abbreviated into iodol.

According to experiments made by DR. MAZZONI, of Rome, iodol is a powerful antiseptic, having an anæsthetic action, and greatly promoting the granulation of wounds. It contains nearly ninety per cent. of iodine, or about seven per cent. less than iodoform. One of the obstacles to its use is its sparing solubility, and another is its very high price, an ounce costing between two and three dollars, though it is most probable, should there be any considerable demand, it could be had for very much less than is now asked for it. The results obtained with iodol by Mazzoni have been stated in a recent number of THE NEWS.

The first and only reference to any experiment with iodal we have met may be found in the *Gazette Hebdomadaire*, for October 22, 1869. RABUTEAU pre-

pared iodal by treating iodine with a mixture of nitric acid and alcohol; he found that it was decomposed under the influence of bases, as are bromal and chloral, giving iodoform and a formiate. He injected about ninety grains into the rectum of a dog; the animal was anæsthetized, but it had convulsions, and died.

It seems remarkable that no further investigations as to the action of iodal have been made, for it is not improbable that this substance will prove to be a valuable antiseptic as well as local anæsthetic, and that it possibly may be successfully administered internally for its alterative influence, or for the purpose of producing absorption.

REVIEWS.

A MANUAL OF MICROSCOPICAL TECHNOLOGY FOR USE IN INVESTIGATIONS OF MEDICINE AND PATHOLOGICAL ANATOMY. By DR. CARL FRIEDLÄNDER, Lecturer on Pathological Anatomy in the University of Berlin. Translated, with the express permission of the author, from the second edition, by STEPHEN YATES HOWELL, M.D., of Buffalo, N. Y. New York: G. P. Putnam's Sons, 1885.

DR. HOWELL has done good service in giving to the profession a translation of this excellent manual, which is deservedly very popular in Germany. Friedländer is the pathologist at one of the large city hospitals of Berlin, and an expert in all departments of medical microscopy. The work is specially designed for students and practitioners, and contains full instruction on the details of section cutting, staining of bacteria, and the examination of the various tissues and discharges. The section on the detection and examination of microörganisms will be found of special value. On the subject of uterine and vaginal discharges, the remarks are particularly good, and the question of the diagnosis of carcinoma, adenoma, and erosion, by the examination of pieces of tissue, is very fully discussed. An intimate acquaintance with the first and second editions enables us to speak very positively of the merits of this manual as a reliable, practical guide, and the student will find in it a comprehensive exposition of the recent improvements in the field of pathological investigation.

The translator has done his work very well. He has added a section on the cholera bacillus, in which the four pages on the culture of this organism are quite superfluous. The absence of an index in the original is no excuse for the omission of it in a translation.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION OF SURGERY.

Stated Meeting, December 14, 1885.

THE CHAIRMAN, STEPHEN SMITH, M.D., IN THE CHAIR.

THE CHAIRMAN said, in introducing the

DISCUSSION ON THE INDICATIONS FOR LAPAROTOMY IN PENETRATING STAB AND SHOT WOUNDS OF THE ABDOMINAL CAVITY,

that in these cases the old method among surgeons was to watch indications, and treat the injuries as ordinary wounds, without any operative interference. Recently, however, laparotomy has been performed successfully in so many conditions and by so many operators in this and other countries that it is a matter of importance to determine how far this procedure is applicable in the class of cases constituting the present subject of discussion. To what extent laparotomy is now resorted to in hospital practice in this city for penetrating wounds of the abdomen was made apparent in the course of the remarks of the various well-known surgeons present.

DR. JOSEPH D. BRYANT claimed that laparotomy should be performed in all cases immediately after the accident, and this statement embodies the portion of the important subject under consideration on the present occasion, which had been allotted to him as chairman. He was unwilling, however, to subscribe himself as an advocate, in the full sense of the term, of any assertion so nearly approaching dogmatism, especially when made in connection with a means of treatment which cannot as yet be said to meet the approval of the profession at large. He who unconditionally asserts that any operation or method of procedure should be resorted to in all cases, even though it is a measure accepted by the profession generally, takes a position that requires, in justice to the profession and the patient, that all operators shall be competent and well armed for its performance. Especially is conservatism necessary in the advocacy of an operation the propriety of which, as yet, is spoken of by many with doubt commingled with dread.

But a short time has elapsed since the late Prof. James R. Wood, in this hall, opposed the measure on what appeared at that time to be sound, practical principles. At least, his remarks received the general approval of the profession not only in this but in foreign countries, and although marked advancement in all surgical procedures has taken place since then, a sufficient time has not yet elapsed, nor are the members of the profession well enough informed on the details of the entire operation, for any one to proclaim boldly "laparotomy in all cases." Few, indeed, are the hospitals in the city of New York which can "immediately after the accident," in the accepted sense of the term, offer the recognized theoretical and many of the practical facilities necessary to dispatch and cleanliness in operating, not to mention other influences bearing on the success of the operation. If these facts are true, how much more illy prepared for the performance of laparotomy *in any case* will the patient find the members composing the great mass of the profession?

He thought it generally conceded that when a member of the profession reads a paper, or makes remarks, or takes part in such a discussion as this, he addresses himself not only to those who may be present at the meeting, but also to all others who may come to read the report of the proceedings afterward. Therefore, for the speakers to-night to place themselves on record as exponents of a method of procedure that even in the majority of the great hospitals, many of them as yet scarcely, if at all, able to meet the entire demands of the case, is to commend to their less fortunate brethren a means that may prove derogatory to their professional reputations, and also relegate this now promising method to the solitude from which it is but slowly emerging.

Dr. Bryant then went on to say that he would change

somewhat the dogmatic statement with which he commenced by putting it into the form of an interrogatory, so that it should read, "Should laparotomy be performed in all cases immediately after the accident?" This interrogatory can then be considered practically as made up of three divisions: *First*, Shall laparotomy be performed in any case? *Second*, Shall it be performed in all cases? *Third*, When contemplated, shall it be done immediately after the accident?

Shall laparotomy be performed in any case? It cannot be denied that laparotomy in connection with various abdominal growths is a fully established operation, and that the results attending the invasion of the abdominal cavity by the numerous operators of this and of foreign countries, plainly attest the expediency of the measure in connection with such growths. Still, there has been a time within the easy recollection of many when even the now popular measure of ovariotomy was less favored than is now the subject of the present discussion. There is, so far as I am aware, no proof of the fact that the peritoneum of the male is not as tolerant of manipulations as is that of the female. The excellent success of Billroth, Rydygier, and many others, so far as immediate results are concerned, from operations on the stomach, pylorus, gall-bladder, spleen, kidneys, etc., of both sexes fully attest that intolerance of the peritoneum to manipulations cannot be considered a rational objection to the operation of laparotomy for penetrating abdominal wounds. The time occupied in the performance of many of the successful operations on the structures referred to is greater than that required to perform laparotomy for a penetrating wound in its entirety, therefore the length of time required cannot be urged as a rational objection to the measure. The extent of the raw surfaces made in many of the successful operations on the stomach, pylorus, etc., is far greater than can well occur in connection with laparotomy for penetrating wounds.

Among the practical elements that at the present time enter into a case of laparotomy for penetrating wounds, but which do not exist, or exert an equal force, in laparotomy for other common causes, are the following:

A. A doubt whether the abdominal viscera be injured. This doubt can exert but little influence, since the signs and symptoms of visceral penetration are as pronounced as those relating to other conditions in which laparotomy is deemed advisable. Moreover, an exploratory laparotomy enables the operator to settle the question of penetration, as it has often before settled matters of doubt in other conditions calling for this operation.

B. Existing shock. This element is almost entirely limited to those cases of laparotomy which are to be done for penetrating wounds. The shock is due either to loss of blood, to injury done the parts, or to both combined. Slight shock always attends penetrating wounds of the abdomen that involve the viscera. We believe it to be an established fact, however, that when severe shock follows immediately after the injury, it is due in the great majority of cases to loss of blood; and if it is due to loss of blood, the hemorrhage should be checked at once. An exploratory laparotomy will decide this question.

C. Unfavorable surroundings of the patient. This element too, like the second, is limited to a laparotomy for penetrating wounds, and refers, of course, to the surroundings of the patient and the time of the injury, the removal to his home or to a hospital, and also to the absence of proper preparations to operate in accordance with the best recognized methods of procedure in such cases; none of which are likely to occur in a laparotomy for other common causes. It is impossible entirely to avoid these contingencies, but their dangers can be greatly lessened by caution in moving the patient; by taking him to a suitable hospital instead of his own home, and by increased familiarity, on the part of the profession, with all the details pertaining to the operation of laparotomy in such cases.

D. Unskilled operators. By this, Dr. Bryant said he meant that the surgeon in charge of the case might not have had his attention forcibly drawn to the details of the operation which are recognized as having an important bearing on the prognosis of such cases. More particularly would he find himself in this position if he had previously looked on the operation with a disfavor bred of prejudice, instead of the result of patient toil and observation. This element can be entirely overcome if the members of the profession will devote an ordinary amount of attention to the matter.

E. Greater exposure of the abdominal cavity and its contents. The great caution necessary in order to find out and to remove from the abdominal cavity all the blood and exuded intestinal contents, to check hemorrhage, and also to detect all points of injury, require that the intestines and the omentum should be thoroughly examined by a preconceived method, rather than by the rough jostling associated with illogical haste. The time employed and the exposure incurred in removing intestinal extravasations, in seeking for and repairing the points of injury, are not useless if the task be performed with proper dispatch, since these procedures offer the only means of saving the patient's life. The time occupied by them in laparotomy for penetrating wounds cannot be greater, under proper surroundings, than that occupied in the performance of many of the successful operations upon the stomach, duodenum, etc.; yet, without doubt, a greater surface of peritoneum is manipulated in the latter, and the peritoneum is also longer exposed to external influences. Can the presumptively unfavorable influence on the case arising from these reasons be lessened or obviated? This question, Dr. Bryant said, he could answer in the affirmative; but since its consideration more properly belonged under the head of the treatment, it could not claim a place in his present remarks.

F. Existence of hemorrhage. In visceral perforation intra-abdominal hemorrhage is necessarily a constant feature. The amount of blood lost depends, of course, largely on the size and the number of the vessels injured. The vessels of the omentum and of the intestines, especially the former, bleed with a pertinacity which is unusual in all other portions of the body, owing, it is thought, to the walls of the vessels being loosely supported by the surrounding tissues; also, to the fact that they seem to possess in a much less degree the inherent attributes which ordinarily enable the natural forces of a vessel to check hemorrhage, viz., contraction and retraction. The suspicion of the existence of much intra-abdominal hemorrhage is enough to

indicate the making, at least, of an exploratory incision, by which means its existence could be quite positively diagnosticated; when, if necessary, the incision can be extended, bleeding points checked, and blood-clots removed.

G. Extravasation of intestinal contents. This is a part of the history of penetrating abdominal wounds, and constitutes the occurrence which is most dreaded by the surgeon. The late Dr. Gross asserted that no case had ever been known to recover in which fecal matter was present in the peritoneal cavity; therefore, this condition is the strongest of the indications calling for laparotomy, offering, as it does, the only means of recovery.

H. The greater difficulty of cleansing the abdominal cavity. If blood and intestinal contents have been generally diffused, the cleansing of the abdominal cavity is more tedious and difficult, and also of greater importance, than in laparotomy for other causes; but the thorough performance of this duty, at least so far as the intestinal contents are concerned, appears to be the only means of saving the life of the patient. As to blood, no one can tell the amount that might remain, and yet recovery occur.

In Dr. Bryant's opinion, laparotomy is a justifiable operation; but it is not to be attempted, even in so-called favorable cases, unless the operator can avail himself of many of the recognized means of procedure necessary to control the shock of the operation, and is sufficiently familiar with its steps to accomplish the work with accuracy and dispatch.

As to the second interrogatory, *Shall laparotomy be performed in all cases?* this portion of the subject had been allotted to others for discussion, and consequently he said he would pass on at once to the third question.

When contemplated, shall laparotomy be done immediately after the accident? Assuming all things to be equal, it should be done at once; that is, as soon as the necessary preparations required to insure a fair prospect of success could be made. In his opinion, laparotomy for penetrating wounds of the abdomen should be of two kinds: the exploratory and the actual. In the former an incision is made in the median line, so situated and of sufficient length, to expose to view the probable seat of the internal injury; which will enable the surgeon to settle not a few important and perplexing questions. He can then, in the great majority of instances, determine if penetration of a viscus has occurred, if hemorrhage is taking place, and if intestinal extravasation exists. Among the common causes of death from abdominal wounds may be mentioned, hemorrhage, peritonitis, septicæmia, exhaustion, etc. If the patient be in danger from immediate hemorrhage, the blood in the abdominal cavity can be seen through the incision in the abdominal walls. If any considerable amount of blood or of the intestinal contents exists in the peritoneal cavity, peritonitis and death will surely ensue; and these conditions can be observed through the opening. Blood in the peritoneal cavity may cause septicæmia, and that rapidly; its decomposition being hastened by the presence of escaped intestinal gases. This, too, may be seen, as its presence is easily detected by carefully raising the omentum and pushing aside the intestines in the line of the injury.

Does the exploratory incision expose the patient to unusual danger? Dr. Bryant thought not. It seemed to him that the large number of laparotomies which have been done here and abroad, and the good results attending them, especially those of Mr. Tait in England, answer this question in the negative. If this conclusion be true, all is gained that is possible, while but little can be lost from the exploratory incision; for if the conditions observed call for it, the actual laparotomy in its entirety can be done at once.

Dr. J. Williston Wright said that he was not prepared to take the ground that all cases of penetrating wounds of the abdomen are to be treated by laparotomy. If gunshot wounds be considered, it will be found that the large or small size of the missile in any instance makes a great difference in the severity of the injury. The velocity of the missile also constitutes an important element in the gravity of the case. For example, he did not believe that the 22-calibre bullet of the ordinary revolver is calculated to do much mischief. This weighs only twenty grains, and the ordinary cartridge contains only about five grains of powder. Even if such a missile did penetrate the abdominal cavity (which is the exception) and pass through a knuckle of intestine, the opening would be so small that an eversion of the mucous membrane would be caused, sufficient to prevent the extravasation of fecal matter, while in the majority of cases the wound would be of a character such as is not followed by much hemorrhage. More commonly, however, the bullet lodges in the abdominal walls, especially if there be much adipose tissue in the latter, even when fired at very short range. If, then, he was called to such a case, and there were no symptoms present specially calling for laparotomy, he certainly would not perform this operation.

But if, on the other hand, he were called to a case in which the injury had been inflicted by what is known as an "express charge," he would expect abundant indications for its performance. In the express charge there is a 40-calibre bullet, which weighs 270 grains, and behind it there are 110 grains of powder. Even in the absence of symptoms, he would consider the case one for immediate laparotomy; for he would feel very sure that if such a missile got into the abdominal cavity at all, it would cut and tear everything that came in its way. He thought it is pretty well recognized that a blow on the abdomen from a spent ball is sometimes followed by very aggravated shock; while in other instances penetrating wounds are entirely free from shock.

In stab wounds, he would not perform laparotomy in many cases, even if he knew the wound were a penetrating one, or even if the omentum were protruding. In this connection, Dr. Wright mentioned the case of a drunken sailor, who stabbed himself in the abdomen, and, when a portion of the omentum protruded through the wound, caught hold of it, in his drunken folly, and dragged it still further out. Yet the man recovered perfectly, and that without even being laid up for an hour. On the very day that he received the injury he went to sea, and in the course of a week the protruding omentum sloughed off; after which he had no further trouble. Within the last year he had seen the same thing at Bellevue Hospital, in the case of the murderer Carpenter, who stabbed himself in the abdomen, but had no resulting symptoms. He did not believe, there-

fore, that surgical interference is called for in every case.

As to the matter of diagnosis, it is difficult to say in every case whether the peritoneum is wounded or not. In many instances there is well-marked shock simply from the force of the blow, particularly if this is in the neighborhood of the epigastrium. There are several points to be taken into consideration:

First. If the shock is extreme and protracted, the abdominal cavity has probably been penetrated.

Second. The occurrence of meteorism indicates danger to the viscera.

Third. The protrusion of the gut through the wound proves nothing as to whether the gut itself has been injured or not. This is shown, however, by the escape of the intestinal contents.

He thought, therefore, that we should be careful how we state that laparotomy is called for in any case. He then said he would go back to the consideration of the wounds made by the small pistol bullet of which he had spoken, which even when they involve a knuckle of intestine are usually of a trivial character. The penetration of the abdominal cavity by such a missile, however, is the exception, rather than the rule, and he had known one of them to be fired from a distance of only two feet and yet lodge in the belly of the pectoralis muscle. In fact, he had seen patients who had these bullets in all parts of the body, and had never known one of them to do any serious injury.

DR. ROBERT F. WEIR said that, in the main, his views were in agreement with those of Dr. Wright. He did not feel in a position to say that penetrating stab wounds of the abdomen are necessarily accompanied with injury of the intestines or abdominal viscera. Unless in any case there are symptoms indicating the presence of such complications, the surgeon has only to watch the patient carefully. In regard to gunshot wounds (a class of cases which at present is engaging the attention of the surgical mind to a large extent), there is a different state of affairs. For his own part, he had a somewhat greater respect for the capabilities of the small pistol bullet than Dr. Wright felt, since he had known it to penetrate the abdominal cavity and do a considerable amount of injury. As a rule, one of the indications is to explore the wound under any circumstances; and he thought that statistics clearly prove that every gunshot wound of the abdomen at short range should be carefully examined, in order to see whether or not it penetrates the cavity.

The question of hemorrhage always comes up in connection with the existence of shock; and it is often impossible to determine offhand, in any instance, whether the patient is suffering from the shock of the injury, or from extravasation, or from the shock of hemorrhage. If the shock is not due to hemorrhage, it will be best to wait for it to subside before performing laparotomy, as the chances of success are thereby increased. But he had learned from the experience of two sad cases that delay may prove fatal; and, therefore, he believed with Dr. Bryant that it is best to make a small exploratory incision in every case where it is impossible to decide whether the shock is due to hemorrhage or not. He would take issue with Dr. Bryant, however, in regard to his point that the simple opening shows whether there is or is not much bleeding. The blood naturally gravitates toward the lower part of the abdominal cavity, and therefore it is often necessary to pass in a sponge or a holder in order to find out the existence of hemorrhage. If this procedure did not indicate the presence of hemorrhage, he said, he would close the small wound and wait until a later time to perform actual laparotomy, in case this was called for.

Dr. Wright had stated that a small bullet might pass through the intestine without causing extravasation of feces or otherwise doing harm; but the very reasons which would make such a wound of less severity would also be the reasons why a laparotomy would be of less severity under the circumstances. For himself, he would proceed to perform laparotomy if the exploratory incision showed that the intestines were wounded; for even if there was no extravasation of feces, there would almost certainly be an escape of gas into the peritoneal cavity.

DR. ALFRED C. POST said that, personally, he has not had occasion to perform laparotomy in any of the cases under consideration. He thought, in regard to incised wounds, that it makes a very great difference in what part of the abdomen the stab is given. If in the region of the stomach and liver, there is less danger of hemorrhage than if the wound is situated in the region of the intestines. Again, if it were still lower down, it might be below the peritoneum altogether, especially if the bladder was distended at the time. In this connection he recalled a case which occurred in the city of New York at the time of the draft riots during the war. A man was stabbed, near the residence of Dr. Van Buren, in the lower part of the abdomen, and the injury was immediately followed by a free gush of urine. He was treated by Dr. Van Buren, and recovered almost without a bad symptom. In a case of this kind the safety of the patient no doubt is due to the large size of the wound, which gave free drainage and prevented the retention of urine in the tissues. A large and direct opening would also have much the same effect as regards extravasated feces. On the contrary, a small wound is liable to be followed by more serious consequences, and he had known a fecal fistula to result from the minute opening made by an aspirator needle, which, in an attempt to aspirate the bladder, had been plunged into the intestines above it. When there is fecal extravasation, he thought that laparotomy should always be performed and the abdominal cavity thoroughly cleansed. When this is done, the patient has a fair chance of recovery; but if the feces are permitted to remain in the cavity, death is inevitable.

THE CHAIRMAN remarked that the propriety of resorting to laparotomy in any case naturally depends, to a large extent, on the idea entertained by the attending surgeon as to the dangers of the operation. The question is, whether the advantages likely to result from it outweigh the dangers attending its performance. He therefore called upon Dr. Polk, who had had a large experience in laparotomy, to speak on this point.

DR. WM. M. POLK said that, so far as dangers are concerned, the results obtained, both at home and abroad, show that the exploratory incision is quite a simple affair, comparatively free from danger. It seemed to him, however, that a simple incision, such as those who confine their attention to pelvic surgery most frequently have to make, would scarcely be sufficient in

the class of cases under discussion. The gynecologist generally knows about what condition of things he expects to find, and if a large tumor is present, he sweeps his hand around it, but does not meddle much with the intestines. Even in the case of the most extensive growths, the intestines are very little disturbed; and he had noticed that whenever they were much disturbed, the danger of the operation was greatly increased. This, then, is the question. If a limited exploration is made, there is comparatively little risk; but if it is necessary to introduce the hand and feel around among the intestines, a great deal is added to the risk. Within the last two or three years, he had seen this strikingly illustrated in this city in Tait's and other similar operations. Formerly, when there were marked adhesions, the intestines were freely handled, and sometimes laid up over the abdomen, and a fatal result frequently followed. Within the last eighteen months, however, in the same class of cases, the results have been very much more favorable, and this was owing to a different mode of procedure. A much smaller incision is now used, and the adhesions are torn away by the hand without regard to hemorrhage, because the latter soon ceases, and a drainage-tube is introduced to remove the blood. Instead of the operation covering an hour or an hour and a half as before, it takes now only twenty or twenty-five minutes. The whole question of danger, therefore, it seemed to him, depends on the amount of handling of the viscera required in any given case. So far as the simple opening of the peritoneum is concerned, at the present time he regarded it as attended with as little danger as five years ago he would have regarded the sewing up of the cervix uteri.

Dr. W. Gill Wylie said that he thought the peritoneal cavity should be opened first, for the purpose of diagnosis. This whole subject, he believed, would be more clear if the etiology and pathology of shock were better understood. To his mind, the shock in these cases depends largely on changes in intra-abdominal pressure and on hemorrhage. The dangers to which Dr. Polk had alluded are due, he thought, not so much to handling of the intestines as to exposure to septic influences from the atmosphere, sponges, etc. According to his observation, the large majority of the deaths were due to septic infection. He would have no hesitation in opening the peritoneum in any case where the patient's life is in question. There is very little danger of increasing shock thereby, and he believed that when the shock is very marked, it can be inferred that there is some hemorrhage; so that the operation is urgently demanded under the circumstances. After performing operations in the abdominal cavity he not infrequently washed out the latter with a solution of bichloride of mercury, 1 : 10,000; following this with the injection of simple hot water.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, December 8, 1885.

The President, Charles McBurney, M.D., in the Chair.

SUPRAPUBIC LITHOTOMY; SUTURE OF BLADDER WOUND; PRIMARY UNION.

Dr. Pilcher presented a man, twenty-one years of age, upon whom, two weeks ago that day, he had operated for the removal of stone from the bladder by the suprapubic method, as perfected by Petersen, of Kiel. The patient had suffered from symptoms of stone about nine years. After etherization, a rubber ball having been introduced into the rectum, it was distended with about ten ounces of water, after which nine ounces of a warm solution of boracic acid were injected into the bladder through a soft rubber catheter. The result was to cause a very marked protuberance of the bladder above the pubis, and to make exposure of its anterosuperior wall, by incision above the symphysis pubis, remarkably easy. The wall of the bladder having been exposed, he followed the suggestion of von Antal, of making an oblique incision through the muscular wall, so as to increase the width of the fresh surfaces afterward to be united by suture. This step in the operation having been accomplished without serious inconvenience, the blue color of the mucous membrane of the bladder could be plainly seen by all present in the operating-room of the Post-graduate Medical School, where the operation was performed. Upon the incision into the bladder being completed, the stone was seized and removed without difficulty. It was of moderate size, weighing 207 grains in its dry state, and was composed of a nucleus of uric acid with an external layer of oxalate of lime principally, with some triple phosphates.

In this case, after removal of the stone, the ease with which the interior of the bladder could be inspected was particularly noteworthy. The posterior wall was clearly visible, and the whole anterior wall was easy of exploration.

The catheter, through which the preliminary injection of boracic acid solution had been made, was left *in situ* to insure continuous drainage of urine; the wound in the bladder was closed by seven or eight points of fine silk suture passing through only the muscular and submucous layers. The suprajacent musculotendinous layer was then closed by a running catgut suture; the subcutaneous tissue was then brought together and supported by three harelip pins, and finally a superficial line of sutures was placed through the integumental wound, a little cotton sprinkled with iodoform was laid upon the wound, and the man was put to bed. Absolute well-doing attended the after-course of the case; the catheter was removed on the ninth day, and the pins upon the day following. On the eleventh day the man went to his home, permanent primary union throughout the whole extent of the wound, without unpleasant symptoms of any kind, having taken place.

About fifteen months ago, Dr. Pilcher had advised with regard to an operation in the case of a child ten or eleven years of age, in whom, according to his wish, the suprapubic method was likewise adopted. The operation was performed by Dr. McPhail at the Brooklyn Orphan Asylum. In that case they did not attempt to close the vesical wound, and the suprapubic wound was left to granulate, while the bladder was drained by a pair of drainage tubes passing through the suprapubic wound to the base of the bladder and outwardly over the pubis and down between the thighs, after the method of Perrier. The progress of the case was as satisfactory as could be expected; granulation took place, and the wound ultimately healed, the patient being

discharged, cured, at the end of the third or fourth week.

He thought the case presented had a bearing more particularly upon what seemed to be taking place at the present time, namely, a readjustment of our views with regard to the relative merits of cutting or crushing methods for removal of stones from the bladder.

DR. BRIDDON asked Dr. Pilcher whether he objected to the operation of crushing.

DR. PILCHER replied that he would not object to crushing, yet it seemed to him that under ordinary circumstances such an operation as this is more favorable for the patient than the operation of crushing. He might say, however, he was especially led to do the suprapubic operation in this case, to illustrate to the general practitioners who formed his class, what he considered to be the best operation available to those who had not acquired the technical skill necessary to crush a stone in the bladder.

DR. SANDS thought that it would hardly be proper to allow a case of this sort, successful as it was, to go upon record without an expression of doubt as to the expediency, if not as to the propriety, of removing a stone of the size of the one presented, and which seemed to be friable, by any cutting operation. This patient had certainly recovered very promptly, else he would not have been shown within a fortnight; but it was probably within the experience of most of the surgeons present that after crushing stones quite as large as this one, and even larger, the patients had been able to leave the hospital in the course of a week. He acknowledged the very great superiority of Petersen's operation in certain cases, but he thought it could not be recommended to the general practitioner as one free from risk. It seemed to him that the operation is one which will always require considerable skill in order to avoid danger to life, and our experience is not large enough to enable us to recommend this as a preferable operation to one which has stood the test of extensive trial, and has proved to be almost absolutely safe in healthy young adults. As an example of successful operation, he would accept Dr. Pilcher's case, but as an example for imitation he would reject it.

DR. A. C. POST recalled a case in which he performed lithotripsy long before evacuation of the bladder had been introduced, three crushing operations having been performed at his clinic, the patient returning to his home on each occasion, a distance of nineteen miles. No unpleasant symptoms developed.

DR. C. K. BRIDDON said that within a few weeks past he removed a stone by the crushing operation in a man more than seventy years of age who had enlargement of the prostate and cystitis of an aggravated character. The operation lasted three hours, and more than six hundred grains of calculous material were removed, yet the man was able to leave the hospital within a week. Eight or nine days ago he performed Bigelow's operation on a man sixty-nine years of age, who left the hospital within a week, with relief from his bladder symptoms. But he thought there was sufficient justification for the operation performed by Dr. Pilcher, for he certainly would prefer to be cut for a stone than to have the stone crushed by a man who was not accustomed to do the crushing operation.

THE PRESIDENT asked Dr. Briddon whether he would not consider the first case to which he had referred as specially suited for the high operation.

DR. BRIDDON replied that he would not want any better result than that obtained by crushing.

THE PRESIDENT said that would apply to Dr. Pilcher's case as well, which was altogether of a different character.

DR. BRIDDON said that if he should have cut this man he would have chosen the high operation in preference to the low one. In such a case the high operation is certainly preferable.

DR. POST asked whether there are not two sides to that question. In a case of enlarged prostate with cystitis, does not the low operation afford a fair prospect of relief of the prostatic and vesical difficulty independently of removal of the stone? A number of cases had been placed on record with such a result by high authorities, such as Sir Wm. Ferguson, Reginald Harrison, Dr. Gouley, and others.

DR. BRIDDON said that such had not been his experience. If relief followed the operation, it was only of short duration, the symptoms returning with as much severity as before.

DR. T. M. MARKOE remarked that, after all, there remain a certain number of cases, small to be sure, in which Bigelow's operation is unsuitable by reason of the largeness or hardness of the stone, and in which he thought the question as to the advisability of the high operation in preference to the low one fairly presented itself. As to a comparison of the high or low operation with crushing, general surgical experience is decidedly in favor of the crushing operation. But in cases in which crushing is inadvisable, the high operation, as modified by Petersen, he regards as, in certain cases, preferable to any other, and it must be accepted as an admirable contribution to modern surgery.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, December 16, 1885.

THE PRESIDENT, R. J. LEVIS, M.D., IN THE CHAIR.

DR. WM. M. WELCH read a paper entitled

CLINICAL NOTE ON THE USE OF ANTIPYRIN.

(See page 9.)

DR. J. S. NEFF said that he had used it about forty times in typhoid fever. The drug is only used to reduce very high temperatures and that result is obtained in the vast number of cases. When given in large doses to animals it produces death by cardiac paralysis. If given properly, antipyrin rarely produces nausea. If given simply in solution in water, it produces nausea in about two or three cases out of every ten. If administered in a simple bitter or aromatic, the proportion is not more than one in ten. He had never seen the delirium increased or headache produced by it. In typhoid fever he had seen large doses fail to reduce temperature, and in some cases where the temperature was reduced, there was no amelioration of the other symptoms, and in the course of two or three hours the temperature again rose; in such cases it is well to suspend its administration. He relied upon quinine in ordinary cases. Profuse sweating is very constant after

the use of antipyrin. If the temperature rises to 103° and sponging does not control it, then he uses antipyrin.

DR. L. K. BALDWIN, having seen the case reported, fully corroborated what had been said by Dr. Welch. The patient's condition after the administration of the antipyrin was alarming, and he felt sure that if the dose had been fifteen or twenty grains, the result would have been fatal in two or three hours. He was under the impression that the drug is apt to be used recklessly, as reports on its use give such a wide margin in dose—that is, from ten to sixty grains or more in a few hours.

DR. NEFF claimed that antipyrin is useful in the symptomatic treatment of typhoid fever for the reduction of temperature. It has also been used in sunstroke, puerperal septicæmia, and other affections. It is more particularly in the early periods of typhoid that it is especially useful in reducing the temperature. The fever of the latter periods is of the same nature as surgical fever, and is due to the absorption of putrefactive matters from the ulcerated Peyer's patches. In such cases, of course, it is necessary to get rid of the cause in order permanently to lower the temperature. The drug must be used judiciously, and where a person is in collapse it should be used with great caution. He had never seen it produce collapse or even a chill. Where the temperature is over 104°, he usually gives twenty grains. If at the end of one hour the temperature be not reduced, ten grains more are administered, to be followed in one hour, if necessary, by another twenty grain dose. It has been claimed that antipyrin also reduces the pulse. This is not always so. The pulse falls, but not in the same ratio as the temperature, and at times the pulse is not reduced at all. He would not regard Dr. Welch's case as a death from antipyrin. From eighty to one hundred grains per diem have been given at the Philadelphia and Pennsylvania Hospitals without any alarming symptoms being produced.

DR. A. W. MACCOY said that his experience led him to believe that the remedy is beneficial in much smaller doses than those ordinarily recommended. He uses from five to ten grains, and has not exceeded ten grain doses in tuberculosis. He has found it useful in the high temperature and night-sweats of phthisis.

DR. WELCH was inclined to believe, from what he had read in the journals and from the discussion elicited, that his experience in this case was exceptional. He had not reported it as a case of death from antipyrin, as the patient lived five days after the administration of the dose, and reacted fully from its depressing effect.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirteenth Annual Meeting, held at Washington, D. C., December 8, 9, 10, and 11, 1885.

(Specially reported for THE MEDICAL NEWS.)

THURSDAY, DECEMBER 10TH.—THIRD DAY.

MORNING SESSION.

THE Association received, and referred to a special committee for consideration and recommendation, a series of resolutions from the Board of Health of Philadelphia, in which it is resolved that no rags from foreign ports shall be permitted to land at the port of Philadelphia until after they have been disinfected. The necessity for passing judgment upon the matter of the importation of rags was urged. The resolutions were referred to a special committee for consideration.

The Executive Committee presented a modification of the resolution of Dr. Lamb, providing for the appointment of a committee to examine into

THE SANITARY CONDITIONS OF THE SEVERAL TRADES,

and suggest improvements therein. It was adopted.

DR. JOHN H. RAUCH, of Illinois, then read the first paper of the day, entitled,

MARITIME QUARANTINES FROM THE MOUTH OF THE ST. LAWRENCE TO THE RIO GRANDE,

which was a report upon the quarantine systems of each of the coast States. He described the various improvements which had been made in quarantine matters at the different ports visited, and a separate report for each State.

DR. JOSEPH HOLT, of New Orleans, then spoke of the sanitary measures taken for the protection of New Orleans, both municipal and maritime. He described the measures not yet taken by New Orleans for municipal sanitation, but toward which the people are being educated by health boards and the intelligent press. Already a plan is bein prepared for the systematic sewerage of the city. Maritime sanitation has taken the place of quarantine along the coast. The theory of germ origin for the essential cause of diphtheria, consumption, smallpox, yellow fever, and kindred diseases, has passed from the realm of uncertainty into a crystallized fact. Burning tar barrels, prayers, and processions, are no longer relied upon as disinfectants. We have tried these, and they have invariably failed. We are no longer fighting the devil and his works, but a microscopic germ—a little leaven, which, if not speedily destroyed, leavens the whole lump. Yellow fever and cholera are due to living organisms, and it is to the destruction of these that our efforts must be directed. The surest prevention of a conflagration is to quench the first spark. The surest prevention of an epidemic is to act on the first suspicion of an epidemic disease.

He spoke of the experiments in Brazil and Mexico, relative to inoculation for yellow fever, and stated that it has been fully proved that the germ can be inoculated into the body of an unvaccinated person, and that a mild form of yellow fever will be thereby produced, and that persons so inoculated have been able to pass unscathed through the most virulent epidemics of that disease. The principal object of his visit to Washington was to present the following resolutions to the Association, with the request that they would bring them to the attention of Congress:

Whereas, The question of immunity from yellow fever is so intimately connected with the social, industrial, and commercial growth of Tennessee, and the Southern Atlantic and the Gulf States of the Union, as to determine the destiny of Memphis, Charleston, Savannah, Pensacola, Mobile, New Orleans, and Galveston; and,

Whereas, A large accumulating mass of testimony that the power of protecting the unacclimated against yellow fever has been discovered and proved in the inoculations of the essential germ or cause of the disease by methods distinctly formulated and available,

these aforesaid declarations and numerous instances cited in corroboration, emanating from medical scientists at the head of the biological departments in the highest institutions of learning in Mexico and Brazil, authorized by and bearing the endorsement of their respective governments:

Resolved, That we, the representatives of the boards of health in the several States of the Union, and we, the officers and members of the American Public Health Association, regarding the question as preeminently a vital issue, as one, in its assumptions, true or false, and, if true, of incalculable worth, surpassing the computation of many millions of dollars, and to the saving of tens of thousands of lives of its own people, hereby petition and urge upon both branches of Congress, now assembled, to appoint a commission for the purpose of making a complete investigation of, and reporting after a thorough examination of the methods pursued, their effectiveness in protecting the unacclimated against the yellow fever infection, together with all associated observations and experiments that may be ascertained.

Resolved, That in the aforesaid petition the commission shall be stated to consist of three persons, one of whom shall be of known ability and special attainment in biological research, particularly in the department of microscopic investigation and culture of the essential germ as causative of the infectious and contagious diseases. The other two members of the commission shall be medical men of recognized ability, based upon long and ample experience, competent to give expert consideration to all phases of the symptoms and course of yellow fever in any form wherein the phenomena of the disease may be present, whether induced in the course of pestilential invasion or in purposely devised inoculation.

Resolved, That this commission aforesaid shall proceed, at the earliest possible moment, to Rio de Janeiro as the first field of its labors. Having completed there its work, it shall proceed to Mexico, and, if necessary in the accumulation of testimony, to Panama, Colon, and Havana.

Resolved, That the sum of $30,000, or so much thereof as may be actually required, be appropriated to pay the necessary and unavoidable travelling and other expenses and the salaries of the members of the commission.

Resolved, That the sum of $5000 shall be paid as a recompense to each member of the aforesaid commission.

The last paper of the morning session, by DR. S. T. ARMSTRONG, U. S. Marine Service, was entitled

MARITIME SANITATION,

and treated of the subject from the standpoint of the sailor, the passenger, the cargo, the vessel, and the port. He called attention to the necessity of legislation for the preliminary examination of sailors before shipment, and of a required minimum cubic space in the sleeping quarters of the crew, etc., by medical officers of the Treasury Department, instead of collectors of customs. Disinfection of cargoes and vessels from infected ports, both by shipmasters and by inspecting officers at the port of arrival. The sanitary condition of the port was only alluded to, as he considered this to be the province of the Association.

DR. RAYMOND, of Brooklyn, offered a resolution that the subject of

THE PRACTICABILITY OF DISINFECTING SEWERS

be referred to the Committee on Disinfectants, with a request to report at the next meeting. The resolution was referred to the Executive Committee.

The Association then adjourned to call at the Executive Mansion and

PAY THEIR RESPECTS TO THE PRESIDENT,

who received them in the East Room, and greeted them cordially, shaking hands with about four hundred members.

THE EXECUTIVE COMMITTEE

held a session immediately after the adjournment of the morning session, and it was decided that the *next annual meeting* of the Association should be held at Toronto, Ontario. Memphis, Tenn., was very urgently recommended.

THE AWARD OF THE LOMB PRIZES

for the best essays was next in order.

For the best essay on *Healthy Homes and Foods for the Working Classes*, the second prize was awarded to Victor C. Vaughn, of Ann Arbor, Mich. The first prize was not awarded.

For the best essay on *The Sanitary Condition and Necessities of School Houses and School Life*, the second prize was awarded to Dr. F. Lincoln, of Boston, Mass. The first prize was not awarded.

For the best essay on *Disinfection and Individual Prophylaxis against Infectious Diseases*, the first prize was awarded to Dr. George W. Sternberg, of Baltimore, Md., amid great applause.

For the next paper, *The Preventable Causes of Diseases, Injury, and Death in American Manufactories and Workshops, and the best means and appliances for preventing and avoiding them*, the second prize was awarded to Dr. George H. Ireland, of Springfield, Mass. The first prize was not awarded.

The President then introduced Mr. Henry Lomb, who, upon motion of Dr. J. S. Billings, was unanimously elected a life member of the Association, amid great applause.

PROF. D. A. SARGENT, of Harvard University, then submitted

THE REPORT OF THE COMMITTEE ON SCHOOL HYGIENE,

which set forth that the uneven manner in which physical and mental training is distributed is shown at once by the fact that those schools which have large playgrounds attached, and a river upon which to row boats, never fail to advertise the fact, while those which do not possess these advantages give their attention to theoretical training. As a consequence, there are unsatisfactory reports from all sides. Here we have all muscle and no brain development, and there superior mental attainments and nervous prostration. The Committee thought that course of training should be adopted which actual observation had demonstrated to distribute most thoroughly physical exercise in proper proportion with the mental exercises of education. Youths

should also be thoroughly taught the first laws of the body, the necessity of cleanliness, pure air in houses, etc., and not only taught these principles, but shown how to make practical use of their knowledge.

Dr. John Morris, of Baltimore, then read

THE REPORT OF THE COMMITTEE ON THE DISPOSAL OF THE DEAD.

In this country six cremation societies have been established, and two crematories, with indications of an increase. If the present mode of burial is continued, great and radical reforms must be instituted to protect the living from the contamination of the dead. Interment must be regulated by legislation, and placed under the control of the health authorities. Not only the time, but all the details of burial must be regulated by ordinance. Embalming should be absolutely prohibited; dissolution of the body should be hastened, not retarded. No doubt the general acceptance of the germ theory, and the surprising discoveries of Pasteur and others concerning the life and office of groundworms, have materially influenced public thought in this matter. Even those who do not favor cremation admit the necessity of reform in the present mode of burial. Cremation is gaining ground in Europe. A bill legalizing the process has been introduced in the French Chamber of Deputies, and is supported by such advanced thinkers as Paul Bert and Renan. It is proposed to build a large crematorium near Paris, and an engineer has been sent to Italy to study the best plan. Three hundred and ninety-six bodies were cremated in Italy last year. A valuable contribution to the subject of inhumation has been recently made in France by Drs. Dumesnil and Fauvel. The deductions therefrom are that in every cavity dug where organic matters are decomposing, there are produced two phenomena which jeopardize the lives of those exposed to their influence, viz., the great and rapid disengagement of carbonic acid, and notable diminution of oxygen in the air.

The Spanish Cortes has passed a bill allowing cremation. The dreadful scenes in Granada, where hundreds of bodies lay for days uncovered during the late cholera epidemic, no doubt influenced the legislation. Germany is also adopting cremation, and the *Berlin Verein für innere Medicin* has declared that the best authorities in the field of hygiene have clearly proved that cremation is the safest preventative against the spread of contagious diseases by corpses. There were one hundred and eighty-six cremations in Germany last year.

In Denmark the subject is exciting marked attention. At the meeting of the International Medical Congress, held at Copenhagen in 1884, Dr. Leuson presented a report on the cemeteries of Denmark, and their influence on the public health. After a most thorough and scientific investigation into the public health of Copenhagen, he concludes that it has been repeatedly demonstrated that pestilential diseases have been traced to the use of water from streams or wells contaminated by the presence of cadaveric decomposition. Other schemes for the disposal of the dead have been urged, among them the encasement of the body in a sort of papier-maché coffin, which is soluble and permits the surrounding earth to reach the corpse in a very short time.

In conclusion, Dr. Morris said:

"If incineration were accepted, all these evils would be arrested. It is generally admitted that this process should be adopted in all great epidemics and after battles, but it would be wise to extend it to cases of zymotic disease, such as cholera, smallpox, scarlet fever, and diphtheria. These poisons are preserved for years, and at certain times and under certain conditions vent their destructive force on the human race."

Considerable discussion followed the reading of this paper, a majority of the speakers apparently favoring cremation.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, December 17, 1885.

The President, A. Jacobi, M.D., in the Chair.

Dr. T. Gaillard Thomas read a paper on

VAGINAL AND VULVAR ENTEROCELE.

He commenced with the statement that there are five varieties of hernia which may show themselves by the vagina and vulva, viz., (1) cystocele, (2) rectocele, (3) vaginal enterocele, (4) pudendal enterocele, (5) perineal enterocele. In the latter there is a descent of the small intestines by protrusion through the perineum. Other varieties might also be given, based on the contents of these hernial sacs, in which the ovaries, the uterus, and the Fallopian tubes, either empty or filled with the products of conception, have in exceptional cases been found; or upon some extremely rare development of this condition, such as in one case of Burns, in which the base of the bladder, passing down alongside of the right wall of the vagina, formed a hernia in the labium majus of that side. But for practical purposes it is only necessary to consider the varieties of hernia named, and this paper was confined to descent of the intestines through the pelvic roof, and their protrusion into the labia majora, the vagina, or through the perineum.

It is curious to see how very generally these varieties of hernia have been ignored in systematic treatises on gynecology, and this is the more remarkable, since errors in diagnosis of them are very liable to occur. Even in literature outside of systematic treatises it is difficult to find much upon the subject. Garengrot, in 1736, according to A. Bérard, was the first to describe this form of hernia, and he was followed by Verdier, Haen, Sandifort, and Richter. Sir Astley Cooper treated of it fully in his celebrated work upon hernia, in 1804. Bérard's *Dictionnaire de Médecine*, published in 1846, gave the best account of it which Dr. Thomas had met.

Having mentioned various instances of this accident which have been put on record by different writers, he went on to speak particularly of

Vaginal enterocele, which consists in a descent of the intestines into the pelvic cavity, either in front of or posterior to the broad ligament of one side. As Boyer and Richter long since pointed out, the intestines never descend directly in the median line, either anteriorly or posteriorly, on account of the intimate relations of the vagina at these points; but always descend a little obliquely, and most generally posteriorly. Usually, it is the intestine alone that descends in these hernial protrusions, but sometimes the omentum accompanies it; and usually, also, it is the small intestine that composes the hernia, but the large intestine may also be involved.

Vaginal hernia, as a rule, develops itself in the fol-

lowing manner: A loop of intestine gradually pushes downward the prolongation of the peritoneum which forms the pouch of Douglas, until it impinges upon the outside of the wall of the vagina, and causes it to arch inward. This mechanical influence being continued, and gradually increased, a tumor forms in the vaginal canal, invests one wall of that canal more and more completely, and may end by escaping from the vulva and hanging outside the body as a complete prolapse of the bladder, or of the uterus, would do.

Under these circumstances, it is evident that the tumor which protrudes has for its component parts, first, the invested vaginal wall; second, the peritoneum; and, third, the intestines. As Bérard has pointed out, it is very important to determine whether the entire thickness of the vaginal wall is inverted and forms the envelope of the tumor, or whether the external coat is torn so as to present an opening through which the hernia passes; and although in the literature of the subject reports of several autopsies are to be found, the point apparently still remains unsettled.

Unquestionably the greatest danger attending this form of hernia, as well as the two other varieties that are to be considered, arises from the possibility of an error of diagnosis on the part of the impulsive or unwary surgeon. If the tumor occurs during labor and obstructs the progress of the fœtal head, it may, perhaps, be mistaken for an ovarian or parovarian cyst with a long pedicle, which has been pushed into the pelvis, in which case a trocar and canula may be plunged in and the operator be horrified at the escape of fecal matter and intestinal gases. Or, if the condition is found to exist in the non-parturient woman, an effort may be made to remove it, which will open the eyes of the operator in a very painful manner in regard to the true nature of the tumor. In this connection Dr. Thomas quoted two instructive cases—one published in the *Centralblatt für Chirurgie* for May, 1879, and one related by Gunz.

Parturition is the most frequent cause of the varieties of hernia under consideration, but it is not to be lost sight of that some of the most striking cases of the accident recorded have occurred in multiparous women. These are usually due to violent efforts, falls, and the previous existence of pelvic tumors which have burst or been removed. Vaginal hernia, so long as it remains in the pelvic cavity and does not interfere with parturition, is usually a matter of little moment and the source of little inconvenience. Under certain malign influences, however, occurring during parturition, as well as in the non-parturient state, such as pressure from the fœtal head, inflammatory processes, fecal impaction, torsion of the contents of the sac, or the existence of a neoplasm, strangulation may occur.

The symptoms which are then apt to develop are: difficulty in locomotion, pelvic tenesmus, colicky pains, dragging sensations, tendency to constipation, and, in time, vomiting. Should the accident complicate parturition, obstructed labor is apt to result. Upon vaginal examination a tumor of greater or less size is found in the vagina, and is diagnosticated by the following physical signs: It is supple, soft, and yielding; decreases upon pressure; gives a sense of gurgling to the finger, if not to the ear; increases upon the patient's coughing or straining; yields resonance upon percussion; and is very generally reducible if the patient be placed in the knee-chest position, and efficient taxis is practised.

Vaginal enterocele may be confounded by a careless and rapid diagnostician with the following conditions: prolapse of vagina, uterus, bladder, or rectum, or with a combination of these displacements; with vaginal cyst; with parovarian or ovarian cyst; with a fibrous tumor presenting low down in the pelvis, with a "cold abscess" of the pelvis; or with a marked case of tubal dropsy. Error is likely to creep in from the practitioner's being too confident, too much off his guard, and too little inclined to consider the possibility of a mistake. If he approaches these cases calmly, philosophically, and in a proper spirit of diagnostic investigation, it is very improbable that an erroneous diagnosis will occur. Having mentioned that most cases present striking features, he quoted the graphic description of a case given by Sir Astley Cooper.

It is to be remembered that, like hernia occurring elsewhere, these forms now under consideration may show themselves in two ways; first, by a brusque and sudden development, marked by alarming and decided symptoms; and, secondly, by a development so gradual and uneventful as to symptoms as to escape recognition entirely until the mere mechanical results of the hernial tumor force themselves upon the attention of patient or physician. In certain very rare cases acute vaginal hernia occurs as a consequence of some traumatic influence destroying the continuity of this canal in its upper part, and a striking instance of this which occurred in the service of M. Auger, was reported by M. Pennel in *La France Médicale* for November, 1881. Dr. Thomas also related two cases which had occurred under his own observation. There is more danger of erroneous diagnosis in the gradually developing, creeping, insidious cases than in the acute ones.

Pudendal enterocele demonstrates its existence by the presence of an elastic tumor, about as large as a small hen's egg, or a pigeon's egg, about the middle of the labium majus of one side. Having explained its mode of origin, he said that some of the French writers divide this form of hernia into two varieties: first, anterior labial hernia; and, second, posterior labial hernia. From inguinal hernia reaching by descent into the labium majus the internal variety may be thus distinguished: 1st. The finger, pushing the tumor upward, will pass into the pelvic cavity between the ischium and vagina. 2d. At the level of the os uteri, or thereabout, it will enter the pelvic roof. 3d. Pressure being maintained in the inguinal canal, and the patient being ordered to cough, it will, in spite of the pressure, recur.

The following conditions were mentioned as liable to be confounded with pudendal hernia: cyst or abscess of the vulvo-vaginal gland; abscess of labium majus; fatty or fibrous tumors of the labium; tumors descending from the pelvic cavity. Cases in illustration of some of these points were quoted, and Dr. Thomas then said that the differentiation of pudendal hernia from these conditions of the labia should be very carefully considered; for if an erroneous diagnosis were made here, a fatal issue might result. The diagnostic signs which prove most reliable, and which may almost be styled pathognomonic, are these: (1) Airy feeling upon palpation; (2) gurgling upon replacement; (3) diminished tension in the dorsal decubitus; (4) diminution of bulk upon

taxis; (5) resonance upon percussion; (6) percussion upon coughing; (7) intestinal pains of colicky character.

Perineal hernia may affect both male and female, and in the latter it consists of the descent of the intestine between the vagina and rectum, the advance being made posterior to the broad ligament, and continuing until the perineal muscles are forced apart, and the gut, with its perineal envelope, is arrested by the skin. All these varieties of hernia are usually readily amenable to taxis, and this Dr. Thomas had invariably found to be greatly facilitated by the knee-chest or genu-pectoral position. In some rare cases strangulation occurred. Under these circumstances the same surgical practice is indicated as in inguinal or crural hernia, viz., cautious opening of the sac and section of the constricting band, by passing up a probe-pointed bistoury.

Before closing this paper he said he desired to put on record a remarkable case of extreme vaginal hernia, which presented some features which he had never met with in such literature of the subject as had fallen under his observation. The patient was a married lady and a multipara, thirty-nine years of age, who came from a country town to consult him during the past autumn. The history that she gave was, that six years ago she discovered a lump in the vulva, in consequence of which she suffered from difficulty of locomotion, difficult defecation and urination, pain, and other distressing symptoms. This lump gradually increased in size till, hanging outside the body, it reached to the middle of the thigh on the right side. In the meanwhile all the previous symptoms became intensely aggravated, and the patient was now greatly emaciated. While the tumor hung down upon the thigh she could neither stand nor walk without extreme suffering; and when it was pushed up into the pelvis its presence gave rise to so much pain and discomfort that she was compelled to force it out again. She had consulted a large number of physicians without obtaining relief, and both she and her husband were now desperate, being willing to try any expedient whatever that promised any hope.

On inspection, the tumor was found to present all the gross appearances of an enormous cystocele; but a closer examination showed that it was of an entirely different nature. It was found to be firmly attached to the ischium on the right side; while the uterus was pressed almost out of reach on the left side of the pelvis. On inserting a catheter into the bladder, the latter was ascertained to be high up, extending obliquely in front of the uterus, and to have no connection whatever with the tumor. By taxis the tumor could be replaced within the pelvis, and in this reposition an extremely slight gurgling sound (which occurred only once) was elicited. There could be no doubt, however, that it was a case of hernia.

This was a case in which all the simpler methods of treatment had failed to afford any relief, and as the weight of the mass, and the pressure exerted by it on the bladder and rectum, were so great as to render the woman utterly miserable, Dr. Thomas proposed the following operation: Perform laparotomy, an assistant meanwhile pushing the tumor well within the pelvis; drag it up into the abdomen, and, all the arteries having been drawn out of the sac, fasten it by sutures in the abdominal wound, the heavy tumor being sustained by two knitting needles crossed. As soon as the operation was explained, the proposal was gladly accepted by the lady and her husband, and in the early part of November last, in the presence of his colleagues, Drs. Emmet and Bozeman, of the Woman's Hospital, who entirely approved of the procedure, laparotomy was performed.

On cutting through the abdominal walls he was surprised to encounter what appeared to be a soft fibrous tumor, on a level with the symphysis pubis, which was covered by peritoneum, and very movable. It had no connection with either the uterus or the bladder. He decided at once to remove it, and this was done, after denuding it of its peritoneal covering. Drainage was then secured by means of a glass tube, and the patient made a good recovery. It is now five weeks after the operation, and there has been no return as yet of the pain or other troublesome symptoms; but he could not but feel somewhat apprehensive about the future. It seemed to him that the growth removed had been the original cause of the vaginal hernia.

In regard to the nature of the tumor, Dr. Thomas read the report made to him by Dr. H. C. Coe, pathologist to the Woman's Hospital. It was a soft, shapeless mass, $8\frac{1}{2}$ by $5\frac{3}{4}$ inches long, and $\frac{3}{8}$ to $\frac{1}{2}$ inch thick, the surface of which had a good vascular supply. On section, there was no sign of a cyst formation. After describing its microscopical structure, of which fibro-muscular tissue formed a conspicuous element, Dr. Coe gave the following inferences: (1) It is not an organ, such as the bladder, for instance. (2) It is not an ovarian cyst. (3) It is not inflammatory tissue. He then stated that two theories had occurred to him as possibly accounting for the conditions found. The first was, that the tumor was an unusual growth of the pelvic connective tissue; and the second, that it was a softened uterine fibroid. The former supposition seemed to him the more likely to be correct.

Having finished the pathologist's report, Dr. Thomas referred to several cases of connective tissue growths, such as tumors of the broad ligaments, which had been reported by A. Martin, Schröder, and Hofmeier, the notes of which had been kindly collected for him by Dr. M'Cosh. In conclusion, he said:

Unfortunately, little can be said concerning the treatment of vaginal or vulvar hernia, for the reason that there is but one variety, the pudendal, which eventuates from inguinal hernia, for which very much can be done. That variety is amenable to treatment by the ordinary truss, as inguinal hernia is. The other varieties can, to a limited degree, be relieved by pessaries, hernial pads, abdominal bandages, etc.; but we are poor in methods of decided relief, and utterly wanting in those of cure. It appears to me that the plan suggested and partially carried out in the case which I have related, promises more than any other which has as yet been brought forward; but of the validity of this surmise, time and experience must give the proof. Certain I am, that if another case of large vaginal hernia presented itself, I should feel inclined to try laparotomy; dragging up the sac, and fastening it in the abdominal wound. B. Schmidt says, in Billroth and Pitha's *Handbuch*, that attempts were made by Huguier at radical cure of vaginal hernia, by an oval excision of part of the posterior vaginal wall and closure by suture, but without any lasting result. He must, indeed, be a sanguine surgeon who hopes for much from such procedures.

DR. F. A. CASTLE said that he had sometimes been struck with the curious contents of these hernial tumors. Thus, he had seen reported in the journals a case in which a portion of a catarrhal and dilated stomach was found in the sac.

CORRESPONDENCE.

RESECTION OF THE JAW FOR ANCHYLOSIS.

To the Editor of THE MEDICAL NEWS.

SIR: In your recent review of the operation of excision of the condyle for anchylosis of the jaw, in the issue of November 21st, p. 573, you credit American surgery with three of the thirteen cases of which you find record. May I beg leave to call to your attention a case of my own in which a brilliant result was obtained. It was done December 10, 1879, and reported in full in the *New York Med. Journal* for April, 1880. I have seen the patient recently, five years after the operation, and the action of the jaw is absolutely *perfect*.

The only other case I know of, which also was omitted from your list, was done by the late Dr. James L. Little in 1873—and resulted equally well.

The entire neck of the condyle was excised in both cases, though by different incisions.

Very truly, your obedient servant,

ROBERT ABBE, M.D.

32 EAST TWENTIETH ST., N. Y.

NEWS ITEMS.

MONTREAL.

(*From our Special Correspondent.*)

SMALLPOX.—The epidemic is almost at an end. During the last week the number of deaths from smallpox has been daily diminishing in the city proper. There have been very few new cases reported, and on some days no deaths at all. The suburbs are still suffering from the epidemic, and, not being under the jurisdiction of the city, decline to isolate cases or enforce vaccination. They have yet a daily mortality of from five to ten. The Board of Health have at last commenced to prosecute citizens refusing to be vaccinated. Several convictions have already been secured, and fines of twenty dollars have been imposed.

LONGUE POINTE ASYLUM.—This now notorious institution is again before the public as one of the few representatives of mediævalism. The conventual authorities not only believe they have special gifts fitting them for the treatment of the insane, but that their heavenly mission also extends to matters of hygiene and public health. It appears that, on the breaking out of the smallpox epidemic, some five months ago, orders were given by the Central Board of Health to have all the members of the Longue Pointe Asylum vaccinated. No notice was taken of this order. The government then directed Dr. Henry Howard, their visiting physician, to see that vaccination was thoroughly carried out. He went to the Asylum with his two assistants, but was refused admission by the Lady Superior, who told him that their own physicians were, under her direction, vaccinating the inmates. Nothing more was done. A few days ago a report spread abroad that smallpox had broken out in the Asylum. This proved, on investigation, to be true; and quite a number of patients are suffering from the disease. There have already been several deaths; but, as the Asylum authorities refuse to give any information to the Board of Health, the number of cases and number of deaths are not known.

Dr. Howard visited the Asylum again last week with his assistants, for the purpose of vaccinating, but was again refused admission, but he insisted on examining the patients, and out of 274 examined he found that only 128 had been vaccinated. The Lady Superior said that many were not in a condition of health proper for vaccination.

The Lady Superior, in a letter to one of the papers, stated that as many as 600 of the 1200 inmates had been vaccinated, and that vaccination had been going on for several months past, and was still going on. The number of successful vaccinations was not stated. If it takes five months to vaccinate 600, how long will it take to vaccinate 1200? is a problem which it is not very difficult to solve. In the meantime the fact remains, that smallpox has broken out in the institution, and several deaths have occurred.

It is stated that the Board of Health intend to institute immediately legal proceedings against the Nuns of the Providence of St. Jean de Dieu in general, and the Lady Superior, Sister Theresa de Jesus, in particular. It remains to be seen whether a Society, which defies, not only the Devil and all his works, but the government and the Board of Health, will have the temerity to defy also the majesty of the law.

A LARYNGOLOGICAL SECTION OF THE NEW YORK ACADEMY OF MEDICINE.—A meeting called for the organization of this Section was held in the rooms of the Academy on the evening of December 23, 1885, the President of the Academy occupying the Chair. A valuable paper, entitled "The Surgical Uses of Electricity in the Upper Air-passages," was read by Dr. R. P. Lincoln, and was followed by an interesting discussion.

Dr. Rufus P. Lincoln was elected President, and Dr. S. Bryson Delavan Secretary of the Section for the ensuing year, and a general plan of organization adopted. The interest in the Section manifested by the members present gave gratifying assurance as to its future success.

THE PROPOSED INTERNATIONAL MEDICAL CONGRESS.—A press dispatch from Washington, dated December 29th, states that a physician of that city, now in Paris, writes to a friend deprecating the lack of harmony among members of the American Medical Association, and says that the controversies prevailing among the medical profession here are likely to make the international convention, which it is proposed to hold in Washington in 1887, a failure. The writer says: "The continued agitation and factional fight among the members of the American Medical Association are producing the most unfortunate results among the physicians and surgeons of Paris. Many have already concluded that the meeting of the International Medical Congress at Washington will not be largely attended, and consequently not a success, and have therefore determined not to make the long journey to America. It will re-

quire the greatest harmony of action, and often repeated assurances that no further difficulties remain to hamper or prevent the convening of the Medical Congress in 1887, to remove the bad impressions and opinions already formed."

A French View of the International Congress.—The following paragraphs conclude a lengthy editorial in *Le Progrès Médical*, of Dec. 12th, on the Congress embroglio:

"What will be the result of this quarrel? Is it of a nature to compromise seriously the success of the Congress? If the sharpshooting which we have already described continues, it is very evident that the European physicians will hesitate considerably before crossing the Atlantic to accept the hospitality of a medical body so profoundly divided. It would be very desirable, from every point of view, that harmony of some sort should be established among our brethren of the United States. There are at stake the good fame of American physicians and the future of the medical relations between Europe and America. Indeed, the Congress of 1887 is called largely for the purpose of increasing these relations, and this to the mutual benefit of both continents.

"Passing over the material, economic side of the question, who can deny the civilizing effects of international medical congresses? They are to science what the international expositions are to commerce and the industries of nations. They multiply scientific relations, they make closer the bonds which unite *savants* of all countries, they aid in the diffusion of ideas and of discoveries; they do not simply mark steps of progress, they actually aid progress itself. It is for all these general reasons that we make an appeal for union and accord. It would be most grievous to record the abortion of the Congress at Washington, for the great American nation has all that is needed to give to this Congress a success and brilliancy equal, if not superior, to those of the older nations."

Prizes of the French Temperance Society.—For the year 1886 no especial subject is obligatory, the requirement being that the essay presented shall bear upon some aspect of the subject of temperance in the use of alcohol. The essay is not rendered ineligible by having been previously published.

For the year 1887 the Society requires the presentation of a brochure to be called "The Mothers' Book: a manual for the use of women who desire to preserve their families from alcoholism." The prize offered is 1000 francs.

M. Pasteur's Hydrophobia Patients.—On Sunday, November 29th, a mad dog ran about the streets of a French village, and bit six people, including a police-sergeant. The preliminary precautions were taken, and the six patients were conveyed to M. Pasteur's laboratory. There are sixty-two people now under M. Pasteur's treatment; they have travelled from all parts of the world after reading his communication to the Académie des Sciences. We are authorized to state that M. Pasteur will receive for treatment any one who has been bitten by a mad dog, and is in danger of being seized by hydrophobia.

M. Gomot, the Minister of Agriculture, has officially visited the laboratory of M. Pasteur. He is so well satisfied with his visit that, it is announced, he will ask the Chambers to enable him to practise inoculation against rabies on a large scale, and to treat human beings suffering from that malady in a special hospital. About forty persons were under treatment when M. Gomot was at M. Pasteur's.—*British Med. Journal*, Dec. 12 and 19, 1885.

A New Position.—A young woman who recently received a medical degree in Paris, has been appointed medical examiner of girls in the Parisian municipal schools. Her duties are to see that the girls are not overworked, and that they accomplish their tasks under good sanitary conditions.

Middlemore Ophthalmic Prize.—The Middlemore ophthalmic prize of £50, offered by the British Medical Association, is again announced: "For the best essay on the scientific and practical value of improvements in ophthalmological medicine or surgery, made or published during the last three years."

NOTES AND QUERIES.

DR. ALBERT H. SMITH.

At the last meeting of the Philadelphia Clinical Society the following resolution was unanimously adopted:

In view of the recent death of Dr. Albert H. Smith, a valued member of this Society, it is proper that we place on record our high estimate of his character and worth. Few men were more relied upon in our professional or personal relations. He was ever a counsellor upon whose judgment and support we relied; and his uprightness and learning lent weight to his opinions and advice.

Though precluded by sickness from an active participation in our later proceedings, yet his earnest sympathy with our objects was well known to us and highly prized.

His professional attainments will ever be both an example and a stimulus to us.

To his family we extend our tenderest and deepest sympathy.

Resolved, That this minute be entered upon our minutes, and a copy be sent to his family, and be published in The Medical News.

Ida E Richardson,
Corresponding Secretary.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM DECEMBER 22 TO DECEMBER 28, 1885.

Fryer, B. E., *Major and Surgeon*.—Sick leave extended six months on Surgeon's certificate of disability.—*S. O.* 292, *A. G. O.*, December 21, 1885.

Vickery, R. S., *Major and Surgeon*.—Relieved from duty in Department of Columbia, to repair to Washington, D. C., and report in person to Surgeon-General for duty in connection with Army and Navy Hospital, Hot Springs, Ark.—*S. O.* 293, *A. G. O.*, December 22, 1885.

Reed, W., *Captain and Assistant Surgeon*.—Leave extended one month.—*S. O.* 293, *A. G. O.*, December 22, 1885.

Ives, F. J., *Assistant Surgeon*.—Ordered to report to Commanding Officer, District of New Mexico, for duty in the field.—*S. O.* 127, *Department of the Platte*, December 23, 1885.

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL ARTICLES.

HYDROCELE OF THE HERNIAL SAC.

BY THOMAS E. McARDLE, A.M., M.D.,
PROFESSOR OF SURGERY, NATIONAL UNIVERSITY,
AND
LOUIS KOLIPINSKI, M.D.,
RESIDENT PHYSICIAN, CHILDREN'S HOSPITAL, WASHINGTON, D. C.

ONE of us having recently assisted at an operation for hydrocele of the hernial sac, we became much interested in the subject. To our astonishment, upon turning to a well known text-book we were informed that "it is a very rare affection, and that not more than six cases are on record." Further investigation, however, convinced us that the author was mistaken on this point, and that his work would be a dangerous one to place in the hands of students were his other opinions of no more value than the one just quoted, but, as Homer sometimes nods, we are willing to concede that a skilful surgeon may not know everything about hydrocele of the hernial sac, and yet write a work on surgery with as great a claim to infallibility as is given to any mundane matter.

In the hope that the result of our investigations of this subject may prove entertaining and possibly instructive to others, we have embodied them in the following pages, conscious that they too may be open to as full and just criticism as we have taken the liberty of making upon the work of others more learned than ourselves.

Authors have frequently confounded a true hernial hydrocele with a congenital hydrocele, or a considerable effusion resulting from a strangulation, and it is hence difficult to determine to whom really belongs the credit of having first understood and described the true condition. Bell[1] says that Saviard was the first to consider it particularly, which we have not been able to confirm. True it is that Schreger[2] was the first to write a monograph, and one too of great merit. This writer is quoted by Chelius, who incorporated the teachings of the former in his *System of Surgery*. In the list of cases which is appended to this essay we have arranged all genuine instances which we have been able to collect. At the same time, we are aware that we have omitted some, both on account of memoirs which we have been unable to examine and reports which we have felt compelled to exclude because of their ambiguity. It will be evident that to French writers belongs the credit of the publication, not only of the majority of cases, but likewise the majority of clear and logical descriptions. Of recent systematic treatises on surgery, the hand-book of Billroth and Pitha is the only one which does more than note the possibility of occurrence.

Our researches were conducted in the library of the Surgeon-General's Office, U. S. A., and our thanks are due to Dr. Fletcher, for allowing us the use of the proof of the volume of the *Index-Catalogue* containing the subject *Hydrocele*, and to Dr. Wise for continuous kindness in obtaining the works we desired.

Hydrocele of the hernial sac is an acute or chronic condition, due to an inflammatory process, and occurring in a hernial sac the neck of which is occluded.

We use the word hydrocele in this connection not because we think it the proper term; on the contrary, we consider it a misnomer, but it is so commonly accepted by surgeons, that we were afraid of being misunderstood if we employed another title. We think that hydrocele was used to signify the condition of affairs under consideration, from the fact that it was at first misunderstood and mistaken for a true hydrocele, which Percival Pott defines as follows: "The term hydrocele, if used in a literal sense, means any tumor produced by water, but surgeons have always confined it to those which possess either the membranes of the scrotum or the coats of the testicle and its vessels."[1] Dropsy of the hernial sac (*hydrops sacci herniosi*) is a better term, and relegates it to the group of watery inflammatory effusions of serous cavities.

We have said that it is an acute or chronic condition. The latter form, it is true, is not so frequent as the former, and is of much less practical importance. It must, however, be recognized by the demands of etiology. The acute condition is the one of greater moment and is the one which a surgeon would naturally have in mind when speaking of hydrocele of the hernial sac. Its development is sudden and rapid, its symptoms active, its speedy recognition necessary, and its treatment prompt and judicious. When the process has run its natural course, when the patient's only complaint may be the bulk of the tumor, there is no danger of confounding it with hernial strangulation, and the surgeon operates for chronic hydrocele at his convenience.

Dropsy of the hernial sac is due to an inflammatory process, because it is invariably preceded by, or associated with, other organic alterations or effects of increased activity, and because an exciting cause, if carefully sought after, is constantly found. The occlusion of the hernial sac is the very best evidence of a preceding irritation, and, as we shall show further on, the character of the protruding parts, and their liability to inflammation, influence the frequency of its occurrence.

Pathological Anatomy.—According to Velpeau,[2] hydrocele of the hernial sac may occur under three

[1] Bell: System of Surgery, 3d edit., Edinb., 1787, vol. i. p. 461.
[2] Schreger: Ueber Erkennt. u. Behand. d. m. Hernie complicirt. Hydrocelen. Arch. f. med. Erfahr., 1. Bd. pp. 1–44, 1809.

[1] Pott: A treatise on the hydrocele.
[2] Bull. Gén. de Thér., 1839.

different circumstances: 1. It may occur at the same time as the rupture. 2. It may occur after the formation of the hernia. 3. It may occur in an old hernial sac, in which there is no hernia. There are practically two varieties of hernia, in which hydrocele of the sac is found, namely: in oblique inguinal hernia of the congenital or acquired forms, and, secondly, in the femoral variety, but the majority of cases happen in males, and are consequently inguinoscrotal herniæ. Schreger[1] gives four varieties: 1. The prolapsed portions occupy the upper, the hydrocele the lower part of the sac; it occurs chiefly in the congenital inguinal form of hernia. 2. The prolapsed parts fully occupy the sac, the fluid filling the interspaces, and is external to the hernia, but not at the fundus of the cavity. 3. The fluid fills the sac, with a small knuckle of gut or omentum protruding into it. 4. (Original with Schreger) a small hernia succeeds a congenital hydrocele, the hernia not protruding, but contained within the inguinal canal.

Hydrops sacci herniosi is produced by an inflammatory serous exudation from the peritoneal lining of the sac, and the peritoneal coverings of the prolapsed parts. The part involved is essentially the peritoneum, and in order that an inflammation of this tissue should occur to produce a hydrops of the hernial sac, it is necessary that there should be an occlusion of the neck of the sac; an occlusion produced by an adhesive inflammation, constricting the prolapsed omentum into the shape of a pedicle, in which hard fibrous tissue predominates, and in which the original appearance is unrecognizable, though the free, protruding mass possess its normal histological evidences. It is this adhesive inflammation of the neck which on the one hand seals the hernial cavity, and, on the other, spreads to contiguous tissue. Thus, union between the walls of the sac and the inflamed parts often occurs, unless it be that to the solid mass is added a rapidly growing fluid tumor.

The amount of fluid varies from a few ounces to three or four quarts. Its qualities are those of an ascitic fluid, yellow, brown, or red, and it may be still further altered by an accidental hemorrhage or suppuration. The sac may be an empty one. The hernia may have been cured; most frequently, however, there will be found an irreducible epiplocele, whilst a small fold of unstrangulated intestine may also partly protrude and menace the success of a radical operation.

Etiology.—We have mentioned the kinds of hernia in which dropsy occurs, and the usual character of the prolapsed parts when the sac is not empty. It is consequently evident that the male sex, inguinal epiplocele of long standing and adhesion of the neck are predisposing causes. The presence of retained omentum, occluding the cavity, is a common concomitant, and by its broad or globular surface and rigid pedicle, is both liable to suffer inflammation, and to injure the lining membrane through its resistance to pressure or sudden force from without.

As exciting causes, stand prominent: contusions, falls, active exercise, sudden severe efforts, and the irritation of a badly fitting truss. Recorded cases clearly show the development of the disease to have been due to imprudent or careless action, in changing or suspending the use of mechanical means of retaining a hernia, and the appearance of active symptoms to have been associated with the presence of a permanent tumor.

The above are the causes which obtained in the cases described by surgical writers, but we may conclude this section with the general formula of B. Schmidt,[1] that hydrocele of the hernial sac is developed by an accumulation of many irritants from without, or from traumatism, or from the relation of surrounding anatomical parts, either within or without the sac, interfering with the local circulation.

Spontaneity of occurrence will hardly be observed, and a successful search for a traumatic cause will be of prime importance in the diagnosis.

Symptoms.—As we have recognized in our definition an acute and a chronic character of the disease, naturally the symptoms will be considered under two classifications.

The symptoms of a chronic hydrocele of the hernial sac may be comprised in but the single objective one of a large, fluctuating, more or less translucent tumor, occupying the site of a hernial sac, and by its feel, as well as its shape, when pendent, indicating the nature of its contents. We recognize the tumor by the history of its development, and the fact of its relation to a past or present rupture. The patient may feel no discomfort beyond the weight and size of the tumor. Its progress may remain uncertain, and in itself is of no considerable importance.

But in an acute exudation the picture changes. The patient has been subjected to one of the causes which we have mentioned, and his hernia, which could be reduced, has increased rapidly, and cannot be made to diminish in volume by manipulation. There are local heat, pain, and tenderness, locomotion is avoided, and the patient lies recumbent, whilst his general condition is unaffected. There are none of the evidences of a sudden strangulation of the intestine, and the natural course of the process would be disappearance or the chronic state.

On inspection we observe the round or pear-shaped tumor resembling a hernia or hydrocele. By palpation fluctuation is evident inversely as the state of fluid distention, and occasionally it has been possible not only to differentiate the extent and position of the liquid, but also the relation and location of the hernia—epiplocele—by its flattened, fissured, or irregular surface.

Translucency is present in every case of pure effusion.

The symptoms are in no wise obscure, and when they all have been considered the diagnosis is apparent. An error is only liable to occur when we ignore the disease.

Prognosis.—Hydrocele of the hernial sac is not a grave disease, except in so far as it is liable to cause errors of diagnosis Although spontaneous resorp-

[1] Op. cit.

[1] Pitha and Billroth: Handbuch d. Chir., iii. Abt. ii., A. p. 1., 1882.

tion is very rare, the surgeon has at his command a ready means of relieving the difficulty when clearly recognized. The percentage of mortality would be almost *nil* if errors of diagnosis could be completely excluded. It is the diagnostician, and not the operator, who may add to the patient's danger.

Diagnosis.—The diagnosis is easy or difficult, plain or obscure. Hydrops sacci herniosi must be differentiated from simple hydrocele and from encysted hydrocele of the cord high up.

It is to be distinguished from simple hydrocele by the history of the case, by the fact that a previously existing hernia has suffered such an accident as to result in an effusion, also from a knowledge of the evidences which we have given under symptomatology and by the relative location and separation of the fluid tumor and testicle.

Greater difficulty may be experienced in distinguishing it from encysted hydrocele of the cord. But if we take into consideration its size, duration, and relation to a hernia, together with the age of the patient, it ought not be so difficult as some would lead us to imagine. A third occurrence, the possibility of which we must not forget, is, that an undescended testicle may lodge in the neck of a congenital hernia, and that a hydrocele either of the sac or of the tunica vaginalis may arise. Such are the cases that have been described by Mayer[1] and by Jodok Baer.[2] But being aware of its possibility, the absence of the testicle from its normal position would at least lead us to suspect the existence of this complication.

It might occur to mistake it for hernial peritonitis or the false strangulation of Malgaigne,[3] but here the general symptoms are much more apt to be viewed as those of a true strangulation, and whilst hydrocele and peritonitis of the sac both affect the same forms and nature of rupture, the danger of confounding the two would not be of material difference in treatment.

But these are minor difficulties when compared with the importance of recognizing the true state of affairs when hydrops and hernia are both present, for the surgeon is apt to diagnosticate one or the other alone. The diagnosis of hydrocele with symptoms of strangulation is unimportant, for the indication is to relieve the strangulation. Indeed, so important is the strangulation and so completely does it outweigh the hydrocele, that the latter is rendered scarcely worthy of the name of complication.

After the diagnosis of a case of hydrops sacci herniosi it is of primary importance for the surgeon to ascertain the position of the hernia, and if possible its nature. It must be sought in the cavity or in the neck of the sac, where it may be recognized by the greater or less tenderness and fulness of that region. Nor should it be forgotten that the hernia may possibly be secondary and its reduction easily practicable. Let it always be remembered that the dropsy of an old and empty sac is a rare form of the disease, and should not be permitted fully to occupy the surgeon's mind whilst a diagnosis is being made.

Treatment.—Various methods of treatment have been advised and practised for the cure of hernial hydrocele. According as the pathology of the disease has been more or less correctly understood, so has the treatment been more or less correctly defined. Pelletan and Atlee, in whose minds the possibility of active hernial complication prevailed, made the preliminary incisions for a herniotomy. Although not clearly understanding the true condition of fluid, sac, and rupture, which they found, their treatment was successful.

Arnaud, Schreger, and Desault tapped as for hydrocele, and the last further advised the injection of red wine to produce inflammatory obliteration of the sac, and in cases of spurious hydrocele in which there is a collection of fluid produced by local irritation or derived from the abdominal cavity, which may occur in congenital herniæ with patulous cavity, Desault practised mechanical occlusion of the neck of the sac by pressure with a pad preliminary to the injection of irritating fluids. Velpeau,[1] whom we may consider to have had the best practical knowledge of his time on this subject, introduced the injection of tincture of iodine. Later writers on the treatment of the acute variety deferred operative measures and confined themselves to the use of antiphlogistic applications, such as leeches, cold, blisters, and the like, in conjunction with rest. Thus were treated the cases of Curling and Robert.

CASE I. Le Dran: *Obs. in Surg.*, transl. from the French by J. S., 1740.—Hernia of right side descended by degrees to testicle. Bandage applied by Arnaud; hydrocele developed in a month; punctured. Case passed into Le Dran's hands. Arnaud refers to this in his mems. on surgery, and reflects on the supposed conduct of his *confrère*, by which he lost the patient. After several tappings tumor extirpated. Three fluid sacs were found: 1. The proper one of the closed hernial cavity. 2. Between the first and the cremaster muscle, in the cellula of the tunica vaginalis. 3. On the tunica albuginea. He removed the hernial sac and the testicle with the cord, which he could not preserve, being confounded with the cystis hernialis.

CASE II. Monro, Sr: *Med. Essays*, Edin., vol. v., 1742.—An old man; hernia extending almost to knee; violent pain in tumor and loins. Tapped, six pounds of clear serous fluid; then the convolutions of the intestines and the knotty parts of the omentum were plainly felt, but none of them could be reduced.

CASE III. Arnaud: *Mems. de Chir.*, Part II., Obs. xxi. p. 560, 1768.—Female, aged 14; left inguinal epiplocele in labium. In falling, tumor struck; increase in size, and permanent, no pain. Punctured, half ounce of fluid. Author diagnosticated epiploic hydatids from constriction. Mentions cases of a boy and of a woman of 40. Similar treatment.

CASE IV. Pott: *A Treatise on the Hydrocele*, first Am. ed. of his works, Philadelphia, 1819, vol.

[1] Mayer: Verhd. d. phys.-med. Gesell. in Würzb., 1854, '56, '57, vii. p. 130.

[2] Baer: Prag. viertljschr. f. d. prakt. Hlkd. xcii. p. 88, 1866.

[3] Malgaigne: Arch. gén. de Méd., 1841, 3 s. xii. 195-289, and Gaz. de Hôp., 1846, 2 s. viii. p. 446.

[1] Journ. de Méd. et de Chir. prat., t. 35, 1864, p. 396.

ii. p. 110.—Male, aged 25; large indolent swelling in scrotum. Very old rupture, retained at first by truss, replaced by dimity bandage buckled on very tight; in six months tumor not reducible, taxis failing. A still tighter bandage applied, thereupon increase in size with pain and uneasiness. Hesitated in the diagnosis, punctured sac, pint of brown serum; irreducible tumor remained in upper part, and sac refilled with fluid in a year. Incised hardened omentum adherent to neck, cut away the free part, and treated as for radical cure of hydrocele.

Case V. Schmucker: *Vermschte Chir. Schft.*, vol. ii. p. 51, 1779.—Male, aged 40; scrotal hernia of left side for ten years. Badly fitted truss. S. reduced intestine, but not a solid mass (omentum), and applied a truss; hydrocele developed in a month. Laid open sac, one quart of water, and, in all, two pounds of adherent omentum removed.

Case VI. Pelletan: *Clinic. Chirurg.*, t. iii. p. 22, 1810.—Male; right scrotal tumor extending to inguinal ring, testicle at base. Old hernia had increased in size for one or two years. Adherent epiplocele of neck and hydrocele of sac. Operated as for hernia, and union by suppuration.

Case VII. *Ibid.*—Male, aged 62; very old hernia, volume gradually increasing. Colicky pains, local tenderness, no symptoms of obstruction or strangulation, tumor hard at ring, fluctuating below. Operated as for strangulated hernia,

Case VIII. Key: *London Med. Gaz.*, iv. p. 105, 1829.—Male, aged 28; suddenly whilst at hard labor, irreducible epiplocele with acute hydrocele of sac, into scrotum. Became chronic. Fluid drawn off and cavity healed by suppuration.

Case IX. Dupuytren: *Gaz. des Hôp.*, p. 87, 1837.—Refers to a case of Boyer, hydrocele in old hernial sac cured by incision.

Case X. Anonymous: *Bull. gén. de Thérap.*, xvi. 224, 1839.—Male, aged 35; right inguinal hernia of twelve years, partially reducible; by puncture, a little fluid withdrawn, and reduction some time after by non-operative means.

Case XI. Malgaigne: *Gaz. des Hôp.*, 2 s. viii. p. 446, 1846.—Male, aged 70; for twelve years an umbilical epiplocele. Suddenly irreducible, patient neglecting to wear truss or bandage. Local acute symptoms, constipation and distress. Subcutaneous incision, once repeated, evacuated serous fluid. Later lancing, pus. Recovery.

Case XII. Curling: *Pract. Treat. on Diseases of the Testis.*, ii. Am. ed., Philadelphia, 1856—Male, aged 58; transparent painful tumor on left side below abdominal ring, due to a blow. Two years' duration, sudden acute symptoms, leeches, blisters, cure.

Case XIII. v. Dumreicher: *All. Wien. med. Zeitung*, ii. p. 64, 1857.—Male, aged 48; left congenital scrotal hernia. Five months before, increased in size from a kick, with symptoms of inflammation. When these subsided applied a truss for the first time, but did not wear it regularly. Three weeks before admission, again enlarged from overeating and catching cold; pain, constipation, and fecal vomiting. Treated with warm appplications and clysters. When seen was the size of a man's head, and hard, elastic, and fluctuating in spots. In upper part omental pedicle was felt. Normal temperature; bowels open. Cataplasms, etc., subcutaneous puncture, three and a half pounds of dark brown-red fluid, sp. gr. 1.021. Again increased in size, and four weeks after tapping two abscesses burst at fundus. Omentum sloughed away, cavity granulated; recovery.

Case XIV. Duclos: *Gaz. des Hôp*, xxx. p. 270, 1857.—Male, aged 70; double irreducible herniæ. Left epiplocele adherent to neck; right adherent entero-epiplocele, serous fluid. Patient died of abdominal peritonitis from extension of herniary inflammation.

Case XV. Robert: *Gaz des Hôp.*, xxxii. p. 126, 1859.—Male, aged 45; right inguinal hernia, suddenly permanent after unusual exertion. Omentum adherent to neck Symptoms, acute hydrocele. Cured by rest and emollients.

Case XVI. Velpeau's Clinic: *Journ. de Méd. et de Chir. prat.*, xxxv. p. 396 1864.—Male, aged 25; fluctuating, indolent, now transparent tumor, extending to right inguinal canal. Hernia for fifteen years, retained by truss. This breaking tumor partly irreducible, increasing size, no general symptoms, omentum adherent to neck of sac. Punctured and iodine injected.

Case XVII. Nérard: *Mém. et Cpt. rend. de soc. des Sci. Méd. de Lyon*, t. v. pt. 2, p. 251, 1865–66.—Female, aged 35; died of pulmonary phthisis. For ten or twelve years reducible tumor in left labium majus. Before death it enlarged, was permanent and painful. Autopsy showed empty herniary sac full of fluid, and its cavity divided by a band into two compartments, from one to the other of which the liquid could be made to pass.

M. Dron mentions, in the same place, to have seen a similar instance whilst interne. The surgeon performed ablation, and the patient died of peritonitis.

Case XVIII. W. F. Atlee: *Amer. Journ. Med. Sci.*, Oct. 1869, p. 422.—Male, aged 60; right inguinal hernia for twelve years. After a purgative he did not wear his truss; tumor irreducible, large, and hard, bowels constipated. Operated for strangulated hernia; sac contained only serous fluid and gelatinous matter.

Case XIX. Tanfin: *Quelques Consid. sur un cas d. Hydropsie hern. enkyst.*, Strasbourg Thesis, 1869.—Female, aged 56; hernia of right thigh, due to an effort twenty years before. Last ten years wore no bandage. Since then, permanent and indolent. For a fortnight increased size, painless, dull percussion, elastic; no general symptoms. Operated to remove omentum contents. Beside fluid in hernia, a cyst was found in front of sac.

Case XX. Author quotes from Gosselin.—Male, aged 24; crural hernia for six years; permanent for some months. For a week pain and colic; slight increase in volume: fluctuating and transparent. Fluid evacuated; the remaining omentum supported by concave pad.

Case XXI. Holthouse: *On Hernia and other Tumors of the Groin*, 8vo., London, p. 44, 1870.—Female, aged 44; tumor in left groin, size of orange, no pain, dull percussion. For twelve years no truss. Swelling at times painful. Ten ounces

of straw-colored fluid. Sac and omentum extirpated. Recovery.

CASE XXII. Langton: *St. Barthol. Hosp. Rep.*, vol. x., 1874. (Reference furnished by Dr. Ashhurst, Jr.)—Female, aged 50; for sixteen years left femoral hernia, laterally irreducible. Three years before, all replaceable but a nodule of omentum. Growth gradual, and no symptoms. Concave pad, no result. Three pints of straw colored fluid removed, and then repeatedly tapped. Seton introduced into cavity, closed by suppuration. Cure.

CASE XXIII. Duplay: *Paris Méd.*, p. 196. 1875.—Male, aged 33; large scrotal tumor left side. Hernia at seventeen years; irreducible for ten days. Taxis failed; volume increasing, tender, transparent, and fluctuating. Omentum in neck of sac. No general symptoms.

CASE XXIV. G. W. Butler Bryant's service: *Med. Times and Gaz.*, i. 617, 1878.—Male, aged 42; had been frequently tapped for supposed hydrocele on both sides. Hiccough, gastric irritability, constipation, pain and tenderness of right side. Tumor tapped, later laid open, and large mass of omentum, which it contained, cut into, thereby gut incised, and the intestinal wound closed with sutures. The operation was done in Bryant's absence by his assistants. Fecal fistula resulted, and death on the sixth day from general peritonitis. Autopsy showed a right congenital hernia.

CASE XXV. DeBrade: *Etuae sur l'hyd. d. sacs hern. ancien*, Thèse de Paris, No. 94, 1878 (Gosselin).—Female, aged 43; for three years irreducible crural hernia right side. After a long walk, rapid growth and painful: no general symptoms. Rest, cataplasms, punctured, 70 gms. fluid; iodine injection. Epiplocele remained.

CASE XXVI. (Gosselin.)—Male, aged 41; right inguino scrotal hernia for twenty-four years. Did not wear a truss. At thirty, only in part to be reduced. Sudden increase in size, painful, no constitutional symptoms. Treatment and result as in Case XXV.

CASE XXVII. Richet: *Gaz. des Hôp.*, No. 110, September 23, 1879.—Male, aged 24: hernia for eight years; not transparent; omentum adherent in neck and fluctuating below. No symptoms. Complaint of size. Tapped.

CASE XXVIII. Richet: *Rev. Méd. Franc. et Etrang.* 629, 1879.—Male, aged 54; chronic Bright's disease, inguinal hernia suddenly permanent and tender. No symptoms of strangulation. Tapped, 300 to 400 gms. of fluid. Autopsy, mild herniary peritonitis with fibrinous exudation. Intestines could not be reduced, owing to atony, and were found after death occluding neck of sac.

CASE XXIX. J. Ford Thompson: *Maryland Med. Journ.*, xiii. p. 64, 1885.—Male, aged 45: right scrotal hernia for twenty-three years. After effort in working, large, hard, and painful. Fluctuating in front; large, hard mass behind, traceable to external ring. Tapped, but refilled: operated, omentum adherent to neck and cavity; sac removed by dissection. Enlarged testicle and elongated cord extirpated, and more than three pounds of omentum removed. Temporary fecal fistula; recovery.

THE GERMICIDE VALUE OF SOME OF THE VEGETABLE ACIDS.

BY A. C. ABBOTT, M.D.,
OF BALTIMORE, MD.

SOME time since, while engaged in work with Dr. Sternberg, the question arose as to the probable value of the vegetable acids as disinfectants. He suggested the advisability of my conducting a series of experiments with the object of determining whether or not they possessed such properties, and if so, to how great a degree. We take this opportunity of recording the results arrived at.

The method used in the work is the same as that explained in the article on "Commercial Disinfectants" in THE MEDICAL NEWS of Feb. 7, 1885. In order that the conditions should be the same in all our experiments—that is, that we should invariably have the amount of the material to be disinfected, and the volume of the solution of the substance to be tested, equal, it therefore became necessary that those acids which came into our hands in a crystalline form should be made into solutions. For this purpose the following standard solutions were prepared, and all the acids not in a liquid form were tested in this manner.

Standard Solutions Employed.

Acetic acid, glacial.			
Lactic "	concentrated	sp. gr. 1.21	.
Oxalic "	crystallized.	10 per cent.	solution.
Citric "	"	50 "	"
Tartaric "	"	50 "	"
Tannic "	"	50 "	"
Gallic "	"	4.75 "	"

The results of exposing decomposed beef tea, pure cultures of bacillus subtilis, bacillus anthracis, and of pathogenic micrococci, for two hours to the action of these acids, are as follows:

Series No. 1.—Decomposed Beef Tea.

	Active.	Failed.
1. Acetic acid, glacial	20 per ct.	15 per ct.
2. Lactic " concentrated sp.gr. 1.21 .	20 "	15 "
3. Oxalic " crystallized . . .	1.5 "	1 "
4. Citric " " . . .	... "	25 "
5. Tartaric " " . . .	20 "	17.5 "
6. Gallic " " . . .	2.375 "	1.9 "
7. Tannic " " . . .	20 "	12.5 "

Series No. 2.—On Subtilis.

	Active	Failed
1. Acetic acid, glacial	20 per ct.	15 per ct.
2. Lactic " concentrated sp.gr. 1.21 .	20 "	15 "
3. Oxalic " crystallized . . .	1 "	0.5 "
4. Citric " " . . .	... "	25 "
5. Tartaric " " . . .	... "	25 "
6. Gallic " " . . .	... "	2.375 "
7. Tannic " " . . .	... "	25 "

Series No. 3.—On Anthracis.

	Active	Failed
1. Acetic acid, glacial	... per ct.	5 per ct.
2. Lactic " concentrated sp.gr. 1.21 .	... "	5 "
3. Oxalic " crystallized . . .	... "	5 "
4. Citric " " . . .	... "	25 "
5. Tartaric " " . . .	... "	25 "
6. Gallic " " . . .	... "	2.375 "
7. Tannic " " . . .	...	25 "

Series No. 4.—On Micrococci.

	Active.	Failed.
1. Acetic acid, glacial	1 per ct.	0.5 p. ct.
2. Lactic " concentrated (sp.gr. 1.21) .	1 "	0.5 "
3. Oxalic " crystallized . . .	0.25 "	0.1 "
4. Citric " " . . .	1.25 "	0 25 "
5. Tartaric " " . . .	0.25 "	0.125 "
6. Gallic " " . . .	0 7125 "	0.475 "
7. Tannic " " . . .	0.25 "	0.125 "

In recording the results of the experiments, the percentage indicating the activity and failure of the acid tested, refers to the proportion of *crystallized acid* necessary to disinfect.

From the tables it will be seen that bacillus anthracis shows the greatest power of resistance to the influence of these organic acids; second on the list is bacillus subtilis; while the least resistant of the series are the pure cultures of pathogenic micrococci.

From these observations I think it of interest that bacillus subtilis, an organism ordinarily possessed of greater vitality than bacillus anthracis, should succumb, while bacillus anthracis survived the exposure to these compounds. Again, it will be seen that oxalic acid possessed throughout the series of experiments the highest germicide value, while citric acid was comparatively inert; the other members of the group occupying their respective places between these extremes.

NOTES ON THE REPORT OF THE COMMITTEE OF THE AMERICAN PUBLIC HEALTH ASSOCIATION. ON DISINFECTANTS.

By EZRA M. HUNT, M.D.,
of Trenton, N. J.

The Report of the Committee on Disinfectants, recently made to the American Public Health Association, and which has from time to time appeared in the columns of this Journal, is an important contribution to the scientific literature of the subject. It deserves to rank high as the best work of its kind done by the Association or in the country. It is the more important as having been done so soon after similar work by the Local Government Board of England, and as in part, at least, confirmatory of its results. As the report, however, is in some respects not in accord with preconceived views, based upon experiments apparently confirmed in practice, it is well for us to examine the basis upon which the investigation was conducted, and the force of the conclusions at which it arrives.

The authors do not leave us in doubt as to the assumption on which it proceeds. In defining a disinfectant to be only such an agent as is capable of destroying the infecting power of infectious material, it also assumes that *all* of the infecting power of infecting material resides in some one of the microphytes which it is found to contain. It gives no limiting suggestion to the fact that there is no consensus of expert opinion to the discovery of the microphyte of a *single one of the ordinary communicable diseases*. The statement of the last English Report is true that "the bacillus anthracis is the only microphyte of which the morphological characters, life history, and pathological action are known." This, as Dr. Salmon reminded us, does not belong to the ordinary aërial contagions.

The experience of actual conflict with these diseases is also an experience of experts, and we should hesitate before we deny to an admitted *antiseptic* the name of a disinfectant. For it is to be remembered that a real antiseptic, which it is admitted will "prevent the *development* of germs in privy vaults, cesspools," etc., and whose value is "beyond question," is all along spoken of in the report as ranking alongside of deodorizers, and is emphatically denied standing as a *disinfectant*. What we want of a disinfectant is to prevent infectious matter from resulting in disease. If sulphate of iron will do this, it is arbitrary to exclude it as a disinfectant, on the ground that in the culture experiments it did not kill the germ. It may be fair to claim this as the *more radical* test. But admitting that "copperas" will do what it is admitted to do (page 46 of the Report), to claim that it is not a disinfectant is more assertive than is our knowledge about the part played by "germs" in the usual communicable diseases. All the more because even if culture does prove that the microphyte will reproduce the disease, it has not yet been proved that no other part of the dejecta of a typhoid fever patient, for instance, will cause the disease, or what is the part played by the putrefactive products before they have passed to their ultimate changes (see page 113). Even if it were proven that there is no chemistry of disease save that initiated by microphytes, it would be necessary to recognize a distinction between the "parasitic life" and its products. But the "morphological characters, life history, and pathological action" of the microphytes of communicable diseases are not as yet well enough known for us to assume that there are no independent chemical or other causal phenomena of disease.

Such a definition of a disinfectant is still more arbitrary when it accepts as an axiom that, "in the absence of spores, an agent which destroys the vitality of one microörganism of the class to which known disease germs belong, will destroy all other organisms of the same class." What does "*of the same class*" mean, when our classification is so incomplete that anthrax, so different in its mode of propagation from scarlet fever, smallpox, etc., is made to stand for all the rest. Is not this sentence from Dr. Cash (of the Local Gov. Rep., 1884) worthy of comparison: "It does not necessarily follow that because the administration of a given drug may limit the action of one virus, that it will certainly have a similar action upon another. The circumstances and manner of growth, and the power of resistance of the bacilli which are, for instance, the active agencies in the anthrax and in bovine tuberculosis, are probably so widely different that a tissue modification which might be fatal to the propagation of the former, would hardly affect the latter."

The limitation "*in the absence of spores*," is all the more disturbing, because if killing the germ is the crucial test which is to exclude from "disinfectants" articles which prevent their development and prevent decomposition, the definition of a disinfect-

ant which attempts such a test and yet leaves the spore uninoculated and unkilled, is still more arbitrary. We, therefore, are not prepared at present to accept such a definition of a disinfectant. All the more because the field is not yet so clear that the laboratory experiment on non-human cultures can be assumed exactly to represent what takes place in the human organism in the processes of disease. It will be time enough for that, when we have more fully settled the analogical inferences between the lower animals and man; when we have tested these more fully by that close clinical observation and experience, which is also an expert conclusion, with corrected tests, and when we cease to find the world's best biologists and microscopists, after seven years of watching, not agreed whether a microphyte which is a specific agent is a micrococcus or bacillus, or what its shape is (see Klein, Sternberg, Salmon, and others, as to swine plague). On page 21 of the report it is shown, too, how much depends on time of exposure.

We are willing to march on just as rapidly as experiment fortified by experience approves, but not to define a disinfectant by the test proposed until we know that there is no other infection in the world than a microphyte, in all respects corresponding to the particular ones which have been cultured in the investigation. We, therefore, cling to the "good authority" for calling a substance which will *prevent putrefactive decomposition a disinfectant* (page 3), and so accept the ferric and zinc sulphates as such, as also sulphur dioxide. In fact, comparisons of sentences show that the report, although in its introduction excluding all but germicides from the name of disinfectants, does occasionally speak of real disinfectants which are not germicides. Thus page 73, "It is a matter of importance to determine the exact germicide power of this and other agents, which have been proved to be useful disinfectants."

We cannot consent, with the facts in evidence, to the disparagement of sulphur dioxide, as "not a reliable disinfectant for the purposes, and in the manner in which it is commonly applied. The article, No. 7, in the Local Government Board, September, 1884, by J. B. Laws, F.C.S., pp. 204–208, and the observations of Dr. Burdon Sanderson, F.R.S., may well be read as a comment.

Bucholtz, Koch, etc., have recognized *killing* power and *restraining* power as both needing to be considered. It is due to the report to say that its conclusions are not so strict as its working hypothesis, and that on page 87 it holds to sulphurous acid as a disinfectant, although in non-spore material the standard five per cent. solution of sulphurous acid failed to prevent the development of various micrococci, of the bacteria of putrefaction, or of the micrococcus of the vaccine vesicle.

While the reasons given fully vindicated the preference for superheated steam for certain purposes, as bales of rags, etc., in accord with the views of Koch, Gaffky, Löffar, and Dr. Parsons, the ground of preference does not apply when dealing with rooms, etc., in the usual communicable diseases. The same kind of consideration we would give to hydrogen peroxide, and would not accept the dictum which disregards "the promptness with which this agent destroys volatile putrefactive products and *arrests putrefactive* decomposition." The experiments of Dr. Kent, under the direction of Dr. Raymond, where the rooms were tight, seem thoroughly to verify the value of sulphur dioxide and its mingled fumes and acids, for the destruction of insect life, while some good points are brought out as to the relative production of sulphurous and sulphuric acids. Experiments with sulphurous acid gas in solution can hardly be regarded as exactly analogous to what takes place in the burning of sulphur, since sulphurous acid is not the only product, and heat, smoke, and moisture have their influence in the penetration and in the decomposition of the products. No known specific microörganisms were exposed in the Brooklyn experiments with burning sulphur.

The article by Surgeon Smart, on the disinfectant properties of putrefactive products, is a very suggestive one, and quite analogous to a consideration of the disinfectant properties resulting from the *decomposition* of gaseous and acrid products, such as those of burning sulphur. Also note the report of MM. Nicati and Rietsch as to the effects of the fluid ptomaine, being the same as that of the microphyte.

The reading of all of this report, from cover to cover, convinces us of its value, *as also* that there is yet very much new truth to break forth on this subject. As a compendium of what has been done before, and as a record of very many most valuable and instructive biological investigations, conducted by a competent committee, it will be greatly prized and not at all lightly by those who cannot accept it as determining the boundaries of actual disinfection in human diseases.

Every one of the writers and experimenters has done good work, and added to the value of the report. But its conclusions, so far as new, need the most cautious adoption, and, in their present form, are not *en masse* ready for popular distribution. We cannot yet tell either the public or the medical fraternity (page 124) that, in the sick-room, chloride of lime and mercurial chloride only are to be used for spore-containing material, and carbolic acid, sulphate of copper, and chloride of zinc for sporeless excreta, and for privy vaults mercuric chloride and chloride of zinc only. The recommendation of immersion of clothing and bedding in a two per cent. solution of carbolic acid for four hours, does not correspond with the text of the report. Fumigation with sulphuric acid gas, for at least twelve hours, is not to be recommended if it fails to prevent the development of the bacteria of putrefaction, and of some of the micrococci, and if no other agents but germicides are disinfectants. We rejoice, nevertheless, that the report does not discard it. Chloride of lime is still retained where we have always held it. In Standard Solution No. 2, permanganate of potash is unnecessarily added. It is claimed, by the report, "not to be generally applicable for purposes of disinfection." It is very expensive, and, if added for coloring, is easily replaced by the sulphate of copper, or by indigo. There are several valuable suggestions in the conclusions, which, if used to modify somewhat several circulars already issued by State boards, will

improve them, and be much better for general distribution than the forms added to this report.

Did time permit, it would be easier to point out in detail the excellences of the report, than it has been to suggest a few criticisms. It is to the honor of the able Chairman of the Committee that he is as unprejudiced and many-sided as such an expert can be, and ready to respect the views of those who, as close clinical experimental observers and reasoners, have studied disease propagation in its real habitats, hosts, and processes. He has been well aided by a competent committee, and not only the Association, but the medical profession at large, will be grateful for the report, and yet hold its conclusions under experimental and clinical advisement and test.

MEDICAL PROGRESS.

Salicylate of Lithia in Rheumatism.—M. Vulpian has presented, before the Académie de Médecine, the following summary of the result of his researches upon the use of salicylate of lithia in rheumatism:

In acute articular rheumatism and in acute attacks of gout, the salicylate of lithia appears to be as efficacious as the similar sodium salt. The lithia salt is occasionally useful in dissipating the still slightly painful joints left after treatment with the sodium salt.

The forms of acute rheumatism in which the fibrous tissue is especially attacked, respond more readily to the lithia salt, which is also the more effective in subacute progressive articular rheumatism. By the use of the salt last named there has been obtained a noteworthy abatement of the symptoms of chronic articular rheumatism.

The maximum efficient dose of salicylate of lithia is seventy-five grains daily, while sixty grains daily are generally sufficient. Its usual physiological effects are, more or less pronounced headache, vertigo, and considerable deafness, but the buzzing and whistling and other subjective disturbances of hearing, so common after the use of the salicylate of soda, are here comparatively rare.—*L'Union Médicale*, Dec. 10, 1885.

Pyridin in Asthma.—In Professor Germain Sée's clinic in Paris, Rosenblück (*St. Petersburg med. Wochenschrift*) has tried the action of pyridin in various forms of asthma. The nervous and emphysematous forms were rapidly relieved; nausea and giddiness being noticed only once. The presence of bronchial catarrh is no contraindication to the treatment, which was carried out by allowing four to five grammes of the liquid to evaporate from a flat dish in a small room, the patients being exposed to the vapor for one hour and a half three times a day.—*British Medical Journal*, December 5, 1885.

Baths of Permanganate of Potassium.—Hulmann, of Halle, recommends baths of potassic permanganate solution as an excellent remedy in scrofulous exanthema, eczema, prurigo, intertrigo, and as a disinfectant in the desquamative stage of the eruptive fevers. The strength of the solution used is one drachm to the gallon. The patient is washed with soap and water, and allowed to remain in the bath until the fluid used assumes a brown tint.—*Nouveaux Remèdes*, Dec. 15, 1885.

Cadaveric Lesions of the Nervous Centres.—Dr. Baillarger, in *The Annales Medico-Psychologiques*, No. 1, 1885, gives an account of some observations recently made, which tend to demonstrate that the adhesions of the membranes to the cortex cerebri, which are almost constantly found in the brains of patients who have died of general paralysis, are only produced after death, and that they ought, therefore, to be regarded as a cadaveric lesion. In five cases in which examinations were made less than ten hours after death, no adhesions were found.—*Dublin Journal of Medical Science*, Nov. 1885.

Effects of Prolonged Lactation upon the Ovaries and Uterus.—Japp. Sinclair presents the following conclusions, based upon the study of a large number of cases of prolonged lactation:

1. Lactation tends to prevent conception by retarding the return of the ovaries to a condition in which ovulation is perfect.

2. After weaning, the evolution of the ovaries is much more rapid than during lactation.

3. The abrupt cessation of a prolonged lactation may be followed by an evolution of the ovaries and uterus so rapid as to induce symptoms of ovarian and uterine hyperæmia.

4. Prolonged lactation may produce a superinvolution of ovaries and uterus, and under favoring circumstances a prolapse of the latter organ.—*Revue Médicale*, Nov. 28, 1885.

Acute Rheumatism.—Dr. Pepper, in a clinical lecture on acute rheumatism, delivered at the hospital of the University of Pennsylvania, described a typical case of rheumatic fever. Speaking of the morbid principle to which the symptoms are probably due, he said it is held by many that this is lactic acid; his own belief was that it is some complex organic substance, which has not as yet been, and perhaps never will be, thoroughly isolated. The great danger of hyperpyrexia from a sudden failure of the heat-controlling centre is one that ought always to be borne in mind. In his experience, it had generally been associated with a marked tendency to nervous exhaustion, either from the prolonged course of the disease with considerable febrile action, or from worry, anxiety, and depression of spirits. The treatment of hyperpyrexia is of the utmost importance. If salicylates and antipyrin fail to bring the temperature down, the patient must be put into a cold bath. His plan is to put the patients into a bath-tub, and rub them with blocks of ice until they are cool, and the symptoms have passed off, when they are put to bed; he has never seen any injurious results from this plan, and believes he has saved life by it in five instances. —*Med. Times and Gaz.*, Dec. 12, 1885.

Nux Vomica in Rectal Procidentia.—During the past ten years Schwartz (*Il. Farm. Ital.*) has successfully used the extract of nux vomica in rectal procidentia, both in infants and adults, even when the trouble has become chronic. One and one-half grains of the extract are dissolved in eight ounces of distilled water, and

of this from seven to ten drops are taken every four hours. The dose for a child is given as five drops, and for an infant of one to two years the dose is two to three drops. A recent prolapse should succumb in from twenty-four to forty-eight hours. To prevent relapse this treatment is continued a week after cure, the appropriate dose being taken but twice daily. If the prolapse is not of recent date, sixty grains of extract of rhatany may with advantage be added to the original solution.—*Nouveaux Remèdes*, Dec. 1, 1885.

COCAINE IN OPIUM HABIT.—DR. BANNING places on record the following facts with regard to the case of a patient for whom it was prescribed in order to counteract the effects of morphinism. Eight grains and a half of the drug were taken in three days, commencing with a dose of one-eighth of a grain, and increasing up to two-thirds of a grain. No appreciable toxic effect was produced; and the only physiological one was exaltation of the nervous power, followed, in three hours afterward, by corresponding depression. Two or three small doses of morphine only were administered during this period, after which the patient progressed without a bad symptom. The patient had been in the habit of taking from five to ten grains of morphine daily for three years. The cocaine was bought in two parcels, and from different druggists.—*Brit. Med. Journ.*, Dec. 12, 1885.

NERVOUS ALTERATIONS IN THE FEMALE GENITAL APPARATUS.—FREUND has examined, microscopically, the two uterine ganglia of Frankhæuser under various conditions, with the following results:

During pregnancy the ganglia become double their ordinary volume, owing to numerical increase and individual hypertrophy of the component nerve cells. After parturition there is observed a converse process,—a puerperal atrophy, which may be either physiological or pathological. If physiological, there is seen a reintegration of the ganglia; if pathological, there occurs a compression of the nerve cells by an overgrowth of the sclerous element. This is seen especially in abnormal uterine involution and in chronic parametritis consecutive to labor.

In addition, these ganglia, the origin of the major portion of the trophic and other nerve fibres distributed throughout the uterus, may induce, by their alterations, grave uterine malnutrition, and thus is established a vicious circle which explains the tenacity of uterine affections consequent upon delivery.—*Bulletin de Thérapeutique*, Nov. 30, 1885.

ALKALOID OF POMEGRANATES.—A crystalline body has been obtained in minute quantities from the rind of pomegranates, which, when placed upon the tongue or other portions of the mucous membrane, appears to cause a paralysis of local sensation after the manner of cocaine.—*American Druggist*, Dec. 1885.

POTASSIUM IODIDE AND GOOSEBERRY SYRUP.—GÉRARD LAGUE has recorded the useful fact that the acridity of potassium iodide is completely masked when administered in gooseberry syrup.—*Journal de Médecine*, Nov. 15, 1885.

BRIEGER ON PTOMAINES.—DR. BRIEGER, of Berlin, who has for some years been engaged in the investigation of ptomaines, has just given to the world, in a pamphlet of 83 pages, the results of his latest researches. These have been directed to the determination of the ptomaines which make their appearance in the human body after death, in order that he might the better distinguish such as are the product of pathogenic bacteria. He has added to those already known, viz., neuridin and cholin, no fewer than five hitherto undescribed. His observations show that in each successive stage of animal decomposition, new basic bodies are found; that some ptomaines disappear, others taking their place, while some found at first very sparingly become more abundant as putrefaction proceeds. So soon as life is extinct, lecithin begins to break up into its proximate constituents, and by the third day neuridin appears, always accompanied by some cholin, but neither of these has any great toxic power; only after they have disappeared do the highly poisonous bases come into existence. The later ptomaines which Dr. Brieger has identified he calls cadaverin, saprin, putrescin, trimethylamin, and mydalein, which, however, are far from exhausting the whole series of cadaveric ptomaines. Dr. Brieger believes that pathogenic bacteria, like those of simple putrefaction, generate ptomaines out of the organic fluids in which they multiply. He conducted observations on the typhus (enteric) bacillus of Koch and Eberth, and was repeatedly able to isolate a ptomaine which was extremely fatal to guinea-pigs; and, turning to septicæmic poisoning, he was in like manner able to connect the origination of the toxic substances in the pus of a psoas abscess in a girl of nineteen years, which ended fatally, with an organism described by Rossenbach as the Staphylococcus Pyogenes Aureus, the poison in this case being a hydrochlorate of a ptomaine. Dr. Brieger's are the first researches of the kind conducted on strict scientific methods, and it is to be hoped that he will, before long, indicate some practical application of his results in the field of forensic medicine no less than of pathology.—*Med. Times and Gaz.*, Dec. 12, 1885.

TEST FOR HEMATURIA.—LUCHINI (*Bollet. Farm.*) recommends the following method for the determination of the presence of blood in urine. It is self-evidently not so delicate as spectroscopic or microchemical analysis, but it has the merit of being easily applied.

To three drachms of the suspected urine are added one drop of strong acetic acid and one drachm of chloroform. After agitation, the chloroform, which sinks to the bottom of the tube, will be more or less tinged with red if blood in noteworthy amount be present in the urine.—*Nouveaux Remèdes*, Dec. 15, 1885.

A CASE OF AUTO-CÆSAREAN SECTION.—The following almost incredible history is communicated by DR. GUGGENBERG, of Meran. Some years since he was called to a woman, thirty-seven years of age, who was taken in labor with her eighth child. After suffering great and ineffective pains for two or three days, the woman, believing herself on the point of death, took a razor and ripped open her own abdomen, extracted a dead child, divided the funis, and removed the placenta. When Guggenberg arrived he stitched up the

wound, and after a short period the patient recovered, and has since enjoyed excellent health. Guggenberg exhibited the woman at a meeting of German practitioners, held at Tetschen, and expressed his opinion that an incomplete spontaneous rupture of the uterus had taken place and that the woman had not penetrated the organ with the razor. The case was further remarkable, inasmuch as although the hemorrhage was at first profuse, it gradually afterward spontaneously ceased, and although a large quantity of the intestines prolapsed and were replaced with great difficulty, the recovery progressed rapidly.—*Provincial Med. Journ.*, December, 1885.

Naphthalin in the Treatment of Ulcers.—According to Dovodtchikow (*Wratch*, 25, 1885), naphthalin forms a most valuable local application to ulcers, especially in patients of the poorer class. Apart from its cheapness and the ease with which it may be applied, it is recommended as inducing rapid healing and cicatrization, and as possessing such antiseptic properties as to cause the rapid disappearance of offensive odors. A still more important claim is that the application is absolutely painless and non-irritant, so that the patient thus treated may continue his work without retarding the cicatrization of the ulcer.—*L'Union Médicale*, Dec. 12, 1885.

Orthophenylsulphurous Acid: Aseptol.—The following conclusions are from a report lately presented before the Belgian Academy of Medicine by M. Anlssens:

1. Aseptol differs from carbolic and salicylic acids in that it is soluble in water, alcohol, and glycerine in all proportions.

2. Though more strongly acid than is carbolic acid, it is infinitely less caustic.

3. It is non-fermentiscible, and possesses to a superior degree the antiputrescent and disinfectant properties of carbolic and salicylic acids.

4. The substitution of aseptol for carbolic acid is recommended in all exigencies of prophylaxis and disinfection in public and private hygiene.—*Revue de Thérapeutique*, December 15, 1885.

Corrosive Sublimate in Conjunctivitis.—Below has placed on record 65 cases of conjunctivitis (26 simple, 19 pustulous, 2 diphtheritic, 2 gonorrhœal, and 16 granular), in which solutions of bichloride of mercury (1 : 2000) were used. From the results of these observations, Below draws the following conclusions:

1. Under this treatment, the diminution of the secretion, both in chronic and acute conjunctivitis, and the decrease of the hyperæmia, are more rapid than in the similar use of nitrate of silver.

2. Simple phylctæna, thus treated, disappears as rapidly as under the use of calomel.

3. The use of a weak solution of bichloride of mercury in spray yields good results as a prophylaxis of gonorrhœal conjunctivitis in the newborn.

The sponging is practised two to eight times daily, and the inner surface of each lid is separately subjected to the action of the solution.—*L'Union Médicale*, Dec. 12, 1885.

Reflexes in General Paralysis.—After a review of the literature of the subject, Bellencourt-Rodrigues (*L'Encephale*, 1885) presents his personal studies of the condition of the reflexes in 68 cases of progressive paralysis.

In 43 cases an increased knee-jerk was present, although two of these were pronounced ataxics. In the remaining cases the reflex was normal.

The plantar reflex was absent in 22 out of the 68 cases; and of these, 16 exhibited increased patellar reflex, in 4 there was absent plantar reflex with normal patellar reflex, and in 2 both of these phenomena were absent.

The author emphasizes the fact that the patients with increased patellar reflex and practically absent plantar reflex, presented otherwise only psychical symptoms without disturbances of speech, and inclines to the belief that the condition described is pathognomonic of incipient paralysis.—*Centralb. f. d. med. Wiss.*, December 5, 1885.

Kostyleff on a Case of Hydrophobia Treated by Inhalations of Oxygen.—In the *Meditz. Oboz.*, Fasc. 24, 1884, p. 1077, Dr. B. Kostyleff, of Tver, furnishes details of an interesting case of hydrophobia in a railway guard, aged 63, of drinking habits, who had been bitten by a suspicious dog about four months before his admission. The wound having rapidly healed, the patient remained well until August 5, when there appeared extraordinary sexual excitement (which remained up to his death), headache, general malaise, loss of appetite, and thirst; and two days later, hydrophobia with pain in the throat. When brought to the Zemsky Hospital, on August 8, the patient suffered greatly from respiratory and pharyngeal spasms, which occurred almost every minute; he spat out frothy saliva with admixture of blood, and labored under intense general excitement with delirium of persecution. Following the instance of Professor Lashkevitch, Dr. Kostyleff gave trial to the oxygen treatment. The effect was most striking. After the first few inhalations, respiratory spasms and salivation disappeared; the lips, which had been cyanotic, turned rosy; the patient became calm, and soon requested to eat, drink, and smoke. Being extremely gratified with the results, the patient did not for a moment part with the inhalatory tube, and during the first day inhaled about twelve cubic feet of the gas. He slept quietly for one hour and a half in the night, but then a severe paroxysm of dyspnœa supervened, which was cut short by reassuming the inhalations. After a chloral enema, he again fell asleep for several hours, and afterwards was able to swallow two or three glassfuls of tea and milk. He was able often to drink also during the next day; but intense delirium set in, the patient ceasing to recognize the surroundings, and stubbornly refusing to inhale oxygen. Still, he inhaled by snatches about five cubic feet of the gas. On the third day he was steadily sinking from exhaustion, and on the fourth day he died from failure of the heart and respiration, remaining unconscious and delirious up to the end. On analyzing the case, Dr. Kostyleff states that, while not believing in the curability of hydrophobia by oxygen (or by anything), he will still pursue the same treatment in every similar case, since it relieves the patient's sufferings both rapidly and powerfully.—*London Med. Record*, Dec. 15, 1885.

THE MEDICAL NEWS.

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SATURDAY, JANUARY 9, 1886.

SCRAPING OF THE UTERUS FOR THE REMOVAL OF RETAINED PARTS OF THE OVUM.

FELSENREICH has recently, in three successive numbers of the *Allgemeine Wiener medicinische Zeitung*, strongly advocated early removal by direct means of any parts of the ovum that may remain in the uterus after an abortion, or after labor either premature or mature. The treatment he recommends is not beyond criticism, for many may think it, in some parts, too prompt, too active, and too heroic. Nevertheless, his article is one of considerable practical value, and to some of the points presented in it we desire to call the attention of our readers.

Felsenreich illustrates, by two very striking cases, the fact that a part of the placenta, or of the membranes, may be retained for weeks or months in the uterus, receiving a partial nutrition, and remain relatively "fresh." One of the cases is quoted from Boeters, and relates to a woman who, nine months after an incomplete abortion in the second month of pregnancy, was attacked with severe and persisting hemorrhage from the womb, which ceased upon the removal of a retained fragment of the ovum. The second case was that of a strong, hard-working woman, who miscarried in the fourth month; the bleeding ceased on the first day; the fifth week after the accident a physician was consulted because of the continuing "lochial secretion," and he found a carcinoma, the size of a small apple, involving the vaginal portion: this carcinoma was supposed to be the cause of the abortion. The tumor was removed by the galvanocautery, and the patient was well in three weeks. Four weeks after the operation she had uterine hemorrhage and severe pain; the flow of blood could not be from the wound made in amputating the cervix, for that had completely healed, but its cause was found to be a fragment of the placenta only as large as a nut, which had been retained for several weeks, without any indication of its presence prior to this hemorrhage.

After presenting these cases Felsenreich states that, according to his experience, there is no benefit to the patient in waiting longer than two days for the discharge of retained portions of the ovum, their spontaneous expulsion seldom occurs later, and with every hour's delay the probability of decomposition and the dangers of septic infection increase. He holds that even two days is too long if the patient lives at a distance from the physician, that the delay should be for but a few hours, and that only in case of near and readily available help is the expectant treatment to be pursued. Thus a time indication for interference in incomplete abortion, or labor, whether premature, or mature, is given.

We think the author is mistaken in including either of the varieties of labor, so far as active interference is concerned, with abortion, and establishing a common time rule for all. The indication for the prompt removal of any portion of the ovum that may be retained is much greater in labor than it is in abortion; moreover, the means by which in most cases the uterus is freed from placenta and membranes, should there be delay, are chiefly external, but this is not true when fragments of the ovum must be gotten rid of after an incomplete abortion. Moreover, we do not believe that, in the majority of cases of incomplete abortion, nature's activity is limited to two days, but that very often after this time the process is completed without detriment to the patient, if proper care be exercised. How much better off would either of the patients referred to have been, had some practitioner of an exploring mind thrust curettes or Simon's spoons into the uterine cavity, groping blindly for some lurking membrane, or loitering placental fragment, when no symptom pointed to their presence? The retention in either of these cases, though it lasted very much longer than two days, did not find expression in decomposition and septic poisoning. These cases testify quite as strongly in favor of the expectant treatment as of any other.

In the removal of retained fragments of the ovum, Felsenreich strongly recommends the digital method, and describes the introduction of the finger into the uterine cavity when the cervical canal is sufficiently dilated. But if the dilatation be not sufficient, Schröder has recommended splitting the cervix as far as the vaginal junction, and after emptying the uterus, stitching the cut parts together as in trachelorraphy, or Emmet's operation. The conservatism of the profession must assert itself somewhere, and we are happy to state that no one has yet proposed

gastro-hysterotomy in the treatment of incomplete abortion.

Felsenreich, after referring to different methods of dilating the cervical canal, such as sea-tangle, sponge, and tupelo tents, etc., gives his preference to the hard-rubber dilators of Hegar, especially because antisepsis can be more readily used with these. In the application of Hegar's dilators assistance will be needed, and narcosis is also usually necessary. Where scraping out the uterus—*raclage*, or curetting—is required, four sizes of Simon's spoons are provided, also two of Bozeman's, or Museux's forceps, a uterine catheter, an irrigator and catheter, dressing forceps, an iodoform *bacillus*, iodoform gauze, cotton, and a two and a half per cent. solution of carbolic acid. The patient lies upon her back across the bed, and the operator sits or kneels between her knees. The vagina is first disinfected, after emptying the bladder, and the uterus is also washed out with an antiseptic solution, if putrefaction has occurred. No speculum is used, but the fingers guide the forceps so as to seize the anterior lip of the vaginal portion, and the uterus is then drawn down, when a Simon's spoon is introduced, and the inner surface of the organ scraped, especially at the fundus, and at the angles at the entrance of the oviducts. It may encourage the timid to know that should the spoon penetrate through the mucous membrane, the operator, and sometimes the assistants too, may hear the sound, and, according to Hegar, will be advised of the fact by a grating bruit caused by contact of the instrument with the muscular tissue. Felsenreich states that in only one case in which, twelve days after a woman had been delivered of a mature living infant, but who had retention of part of the placenta, it was necessary for him to use the spoon, was this peculiar grating or creaking recognized.

After the removal of all fragments by the spoon, Hegar disinfects the uterus, and applies to the interior a five to ten per cent. solution of carbolic acid, or a strong tincture of iodine, a solution of chloride of zinc, or even strong nitric acid: such applications hasten uterine involution, and prevent the return of fungous endometritis. Felsenreich washes out the uterus with a solution of carbolic acid, introduces into its cavity the iodoform rod, and into the vagina iodoform gauze. He narrates six cases in which he carried out his method of treatment successfully, but each one manifested urgent symptoms arising from incomplete abortion, or from imperfect deliverance, such as would have led the most conservative to resort to active interference, though that interference might not have been in all respects such as he has described.

Pajot has said that German wombs are very complaisant, and should he read Felsenreich's paper possibly he will repeat more emphatically the observation. Nevertheless, better the treatment of cases of incomplete abortion so generally followed in Germany, than to let these poor patients perish with septicæmia.

But when should interference take place? If a part of the ovum be retained, and it cannot be immediately removed without violence, and there be no hemorrhage, most practitioners think it wisest to wait. But at the moment that either hemorrhage or offensive discharge occurs, the time for prompt action has come. Possibly, if there be only hemorrhage, nothing but antiseptic tamponing of the vagina and a few doses of ergot will be required. But if the hemorrhage persist, or if the flow be offensive, no matter if constitutional infection has not yet manifested itself, the uterus must be emptied at once. Dilatation of the cervical canal, promptly done, is better and safer than that which requires hours for its accomplishment, and hence Hegar's dilators are to be preferred to any of the tents so commonly used. After the dilatation, let the fragments of the ovum remaining in the uterus be removed, if possible, by Emmet's curette forceps, or one of the wire curettes; if one fails with these, we think that Récamier's curette, notwithstanding the bad name that has been given it, is quite as safe an instrument to use as is a Simon's spoon. During this removal careful antiseptic means should be employed, and afterward the uterine cavity must be thoroughly swabbed with Churchill's tincture of iodine.

DEMENTIA PARALYTICA AND SYPHILIS.

IF statistics are worth anything, we must regard syphilis as a most important factor in the etiology of two very common diseases of the nervous system, tabes dorsalis and general paresis. The very frequent association of the former with previous syphilis is now generally recognized, but it is only of late years that attention has been called to the remarkable number of general paralytics in whom a history of syphilis can be obtained.

English writers do not appear to have especially noticed this association, but recently continental authors have taken up the subject, and a few months ago there was an earnest discussion upon it at the Berlin Medical Society. MENDEL appeared as the chief upholder of the view, and quoted figures which are certainly very suggestive. Thus, of his own cases, in 75 per cent. there was a history of previous syphilis; in Snell's, 75 per cent.; in Romell's, 77.2 per cent.; in Wahrendorf's, 50 per cent.; and in Förstner's, who is opposed to a belief in the connection between syphilis and paresis, 32 per cent. Such statistics indicate either grave errors in collecting the facts or else that syphilis is so common that the high percentage among paretics is of no special significance, but that this latter is not the explanation

is shown by a comparison of the percentage of lunatics having a history of previous syphilis, which Obersteiner found to be only four per cent., with cases of general paralysis, of which there were 21.6 per cent. among his patients. Lange also found among his paretics 33 per cent. with a history of syphilis, while among the other lunatics the number of those who had had syphilis was only 2 per cent.

Westphal professes no faith in the value of statistics, and in general paralysis, as in tabes, does not think that syphilis stands in an etiological connection with the disease. The absence of all traces of syphilitic lesions in the bodies of persons dead of general paralysis, is to him conclusive evidence against the view. Reinhardt, of Hamburg, in 170 cases did not find one with syphilitic lesions in the brain or its membranes, though there were twelve with such lesions in other parts of the body. Admitting the fact that persons who have had syphilis are more prone to general paresis, there is still the difficulty of explaining the precise relationship between the diseases. The changes found in the brain and cord in dementia paralytica are no more specific —*i. e.*, syphilitic—than are those of tabes, and the picture is quite different from that of recent cerebral syphilis. Mendel, however, does not regard the lesions inducing the paralysis as syphilitic, but holds that there is a specific arteritis of the smaller vessels which gradually leads to the changes in the substance of the brain. If this be the case, we should expect to find occasional examples of genuine cerebral syphilis, but Reinhardt's studies of 170 autopsies demonstrate that the specific lesions rarely if ever occur.

The question is one of local interest, as a few weeks ago the columns of the public press contained a full account of an autopsy upon a prominent actor, in whose case there had been difference of professional opinion as to whether the disease from which he was suffering was dementia paralytica or cerebral syphilis. The lesions were certainly those commonly met with in the former disease, but we allude to the case now, solely for the purpose of protesting, in the interests of professional decency, against physicians pandering to a debased public taste, and allowing themselves to be made the tools of sensational news reporters.

It is time that honorable physicians set their faces against this ever-increasing habit of furnishing representatives of the press with details which satisfy no public purpose, but which simply minister to the morbid longings of a prurient and gossip-loving public. In this irreverent generation, the almost sacred character of the relation of the physician and patient has come to be lightly regarded, and the modern reporter, with an assurance strengthened by success, asks for, and expects to obtain, information of the most private nature. That he should so often procure it, is a sad evidence of degeneracy in the profession, and of the neglect of that most important section of the Hippocratic oath, which says: "Quæ vero inter curandum, aut etiam medicinam minime faciens, in communi hominum vita, vel videro, vel audiero, quæ minime in vulgus effevri oportent, ea arcana esse ratus, silebo.

A PAINLESS ESCHAROTIC.

MR. C. E. JENNINGS has recorded in the *Lancet* for October, 1885, two cases in which he used cocaine to alleviate pain, whilst caustics were applied to cancerous growths. One patient was aged 73, and suffered from extensive scirrhous ulceration of the right breast. The surface of the ulcer was covered with rugged, irregular granulations, which bled upon pressure; the veins around the growth were much engorged and the pain was increasing. After painting the ulcerated surface with a ten per cent. solution of hydrochlorate of cocaine, a paste was applied consisting of cocaine, potassa fusa, and vaseline. After some minutes a burning sensation was experienced; then the paste was quickly removed with the charred tissue, by means of pledgets of cotton-wool previously moistened with water. The denuded surface was again painted with cocaine solution, and the compound paste reapplied. By this means, more than a tablespoonful of cancerous growth was removed by a rapid and painless process. The next day a clean, smooth, and bloodless surface, insensitive to the touch, was presented. By this means, most of the scirrhous mass was removed after a few applications. In the second case, the author destroyed a cancerous growth of the os and cervix uteri, by means of sticks of potassa fusa, and a ten per cent. solution of cocaine.

The suggestion that cocaine could with advantage be added to escharotic mixtures, originated with RANDOLPH and DIXON, who published, in THE MEDICAL NEWS of January 24, 1885, an account of their experiments. For the purposes indicated, the advantages of the combination they recommend, as compared with the simple painting, with cocaine solution, of the tissue to be destroyed, are at once evident:—indeed, in the case of the uninjured skin, such painting with cocaine alone is practically without result. As a painless cutaneous application for purposes of counter-irritation, much, apparently, is to be expected from the admixture of cocaine with the acid or caustic employed.

INTRAPARENCHYMATOUS INJECTIONS IN PNEUMONIA

THE treatment of inflammation of the lung by the injection of remedies into its substance has been attempted by LÉPINE, of Lyons, who reported some months ago a rapid improvement, both local and general, under this method. He employed at first a solution of the bichloride of mercury, 1 to 40,000, of

which 20 or 25 cubic centimetres were injected, with the immediate effect of a diminution or disappearance of the râles and blowing breathing, and within twenty-four hours a reduction of the temperature with improvement in the general symptoms. Resolution set in a few days after the defervescence, and convalescence was rapid.

In the *Revue de Médecine* of December 10, he reports a case which was treated by injection of the iodide of sodium, 25 c.c. of a solution of 1 to 25. The patient, a man aged sixty, in a bad condition of health, had a chill on the evening of the 11th, and on the 13th was brought to the hospital with signs of inflammation of the left base. On the 14th, fifty hours after the chill, injections of the solution were made at three different points below the angle of the scapula. Very slight improvement followed, and on the morning of the 15th two other injections were made of 30 c.c. each. Defervescence took place in the night, within four days from the onset of the disease, and by the eighth day resolution had set in. No other treatment was employed, except in the early stages. When the disease is advancing, we should regard this method as of very doubtful value. It is quite possible that the extension of the process might be limited by the injections, but when hepatization has been established in an entire lobe, it is very unlikely that such a small quantity as 25 c.c., when injected in several places, could have much influence upon the process. Indeed, in the report of the cases referred to, it is stated that resolution did not set in for several days after the subsidence of the symptoms, and the improvement may, perhaps, be attributed to the general effect of the drug, and not to its local action upon the lung.

SOCIETY PROCEEDINGS.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, December 21, 1885.

THE PRESIDENT, CHARLES A. LEALE, M.D., IN THE CHAIR.

DR. J. R. MACGREGOR read a paper on

INSANITY AND PUBLIC OPINION.

In former times, he said, when not only society in general, but even those whose attainments were of such a character as to entitle them to be looked upon as leaders in opinion, had not become emancipated from the thraldom of tradition, the occurrence of insanity was supposed to be occasioned by the direct influence of the Deity; so that the unfortunate subject was considered, for some unknown offence, to be laboring under divine displeasure, and suffering punishment in consequence. Such unfortunates were regarded with aversion, and usually consigned to chains and dungeons, where, whatever might have been their chances of recovery under favorable conditions, they were effectually excluded from the benefits which might have been derived from appropriate treatment. Mental derangement being thus regarded as a direct dispensation of Providence, it was not expected to be understood; hence, inquiry was discouraged at the outset, and hope of recovery considered out of the question, except under the unlikely operation of the same power which induced the catastrophe.

A somewhat similar state of things characterizes the theory that the mind can be disordered as a separate entity, and the practical effects of this view are hardly different from those of the one first mentioned. Having no knowledge, and there being no means of acquiring any, of the nature of mind as an independent principle, unconnected with the instrument of its material manifestation, it is apparent that all attempts to reach this principle or modify its qualities, will be to no purpose. Notwithstanding the advances which have been made in our knowledge of insanity, there is in the community too large a percentage of men who, intellectually considered, from custom or organization, are, like a blind horse in a mill, satisfied with the same dull round. The evil effects of such deficiency are apparent, not only in the crudities and errors which are adhered to as established truths, but they present themselves as obstacles to that advance which would enable the insane to be better cared for, and insure a larger percentage of recoveries. A very large amount of proof could be advanced in support of this statement, showing how greatly those in charge of the insane are handicapped in their endeavors to relieve this class of patients by the mistaken zeal of the community.

A very prevalent idea is, that every asylum contains a large number of inmates who do not labor under any mental affection. This must necessarily involve the inference that the superintendents are deficient in principle, and consequently unworthy of their positions, and that a collusion on the part of hospital managers, with motives which are none of the best, can be effected. The consequence is, that the suspicious element in the common mind can easily be aroused, and made to follow the direction of any one bold enough to lead, and plausible enough to enlist its sympathies for a seemingly good object. It is only necessary to declare that the sacred right of liberty has been infringed. Popular clamor assumes sway and cries out for retribution; and there are never found wanting those who, either for the emolument to be gained or the *éclat* that will follow, stand ready to embark in the enterprise.

Notwithstanding the general prevalence of the idea that the practice of confining in asylums persons who are sane is a common one, the facts, where it is possible to ascertain them, go to prove that it is not well founded. Some six or eight years ago this subject was agitated in Great Britain, and Parliament appointed commissioners who were empowered to visit every asylum, both public and private, throughout the kingdom, and personally investigate every supposed instance of unjustifiable confinement. This order was executed with minute thoroughness, but the commission was unable to discover a single well-authenticated case.

That there are such things as asylum abuses, no one pretends to deny. But that both their frequency and character are greatly overstated, is equally true. The announcement of a circumstance of this kind, served

up by the press with the exaggerated force of a dramatic tone and coloring, will hardly fail in carrying the multitude; and the construction put upon it is also very wide of a logical deduction, viz., that it is inseparably connected with the system. A single instance is sufficient to array the sentiments of the public in an attitude of hostility toward all asylums; which, when once assumed, it is very difficult to change. A careful inquirer, with unbiassed mind, taking nothing for granted, and willing to devote himself to an extended investigation of this matter, will find, as he proceeds, that the magnitude of such an evil will steadily diminish in its proportions. Whenever these evils do occur, it will also be found that they are confined, for the most part, to those institutions which, from their construction and appointments, are not such as are adapted to carry out the highest needs of the insane. The very large establishments usually built in our municipalities for the insane poor, where immense numbers are congregated, are run on so cheap a scale that the individual cost per patient is scarcely greater than that for the inmates of almshouses. The wonder is that in these establishments, with the resources available, they succeed in doing as well as they do. Complaints of ill usage are very seldom made against private asylums, or those governed by private corporations, where such rates of charge are made as will command the best arrangements for treatment, and the highest order of service. In this connection Dr. MacGregor quoted the following passage from one of the annual reports of Dr. Luther V. Bell, formerly Superintendent of the McLean Asylum at Somerville, Mass.: "There is no such thing as a just and proper curative or ameliorative treatment of the insane in cheaply constructed and cheaply managed institutions; but, to do the greatest amount of good to the insane, the mind of the taxpaying community must be trained to understand and admit the necessity of expensive arrangement, and that, if it is worth while to have any institutions beyond those receptacles in which the most patients, or rather the most sufferers, can be crowded together at the least charge, it is worth while to establish such as will accomplish all of cure or relief which is practicable."

A vulgar opinion exists to some extent, that any person of ordinary intelligence is as capable to judge of the insanity of a patient as the most experienced hospital director; though it is difficult to understand how such a notion can be rationally entertained. A case, illustrating this point, which came under his notice, was related by Dr. MacGregor.

There is, probably, no point connected with insanity which elicits a greater popular interest, while at the same time there is hardly any other on which the public mind needs remodelling, than the knowledge of its causes. As it is a very common error to suppose that every remarkable event is preceded by one equally remarkable, the irresistible tendency which the public manifests on this subject is to seek for some prominent circumstance which has gone before, and assign to it, in conjunction with the after-phenomena, the relation of cause and effect. In reality, the causes of insanity are varied and diverse, covering a wide range of conditions, and often hidden in deep obscurity. In the vast majority of instances, there will be found in tracing the causation a variety of circumstances to be taken into consideration: some, to the trained mind, easy to discover; others, difficult of appreciation, and only to be discovered after long observation. It often happens that manifestations which are regarded as being of the greatest significance are subsequently found to have had less to do with the development of an attack of insanity than some obscure diseased cerebral action which, although imperceptible at the time, proved none the less real. Yet when a case occurs under our notice, the first question propounded by those interested in the patient will probably be, "What is the cause?" and we may run the risk of damaging our reputation for professional sagacity if we do not have ready at hand a prompt and specific answer. The friends of the patient are prolific in their views of the case, and these are often advanced with a degree of confidence from which the most experienced alienist would shrink. To show the unreliability of such opinions, and their entire lack of any philosophical discrimination, it is only necessary sometimes to place in apposition the opinions of two sets of friends, who, either with opposing motives, or regarding the same condition from different standpoints, reach conclusions which are directly antipodal; each side, in the meanwhile, remaining satisfied that it has reached the correct conclusion. The statistical tables appended to the reports of asylums, in which the causes of the disease are individually noted, are, no doubt, largely unreliable, because the information upon which they are based is derived chiefly from this class of people.

The tendency is, in general, to run after the marvellous, and such kinds of information as will produce a painful, rather than a healthy impression on the human mind; and this has often led the social reformer, in the pursuit of his favorite hobby, to manipulate the truth in a manner favorable to his project of uprooting some special evil existing in society—some particular vice or practice, such as intemperance or sexual indulgence, with the suppression of which the earthly millennium is expected to come. It may be said in regard to these vices, however, that although they unquestionably hold their place in the causal list in varying degrees of influence, it often becomes a question as to what is the true relation that they bear toward the disease—how much they may be considered as causes or symptoms of development, or even as the results of the disease. It is generally understood that hereditary tendency occupies the first place in the list of causes; but if asked to specify what influences are most potent in developing the disease, we would be likely to say, those which produce their effect upon the emotional faculties. A proper appreciation of such influences constitutes an important part of that education of which the public mind stands in need.

There is another topic relating to this inquiry, which, if rightly apprehended, would tend to uproot a vast amount of prejudice, and practically redound to the welfare of the afflicted subjects. It refers to the curative measures which are most appropriate. There is no method so likely to produce a favorable result in the shortest time as the early removal of the patient to a hospital; but in most cases, unless the violence of the attack calls for immediate seclusion, recourse is had to almost every other available expedient; generally with a loss of valuable time that diminishes the patient's chances of recovery. Those interested are

loath to recognize that, so long as a patient is allowed to follow the bent of his own will, he is only fostering and strengthening the morbid processes going on in his brain; and that while he remains amid the surroundings of his home, there are constantly brought to his notice objects and scenes intimately associated with the development of the disease, which not only keep alive, but tend to aggravate the morbid action. Antipathies to hospital treatment have occasionally led some to the experiment of retaining patients whose means would warrant it at home in apartments arranged for the purpose, with the assistance of kind attendants. This enables them to have access at all times to the patient, and prevent any harshness of management, while at the same time it is supposed to furnish all the advantages of an insane hospital.

In a hospital for the insane, however, the proper conditions for intelligent treatment can be most effectively fulfilled. The persons engaged in the service become gradually acquainted with the ways of the inmates, and they acquire many arts of management and a degree of skill in the performance of their duties quite unknown to the outside world. Moreover, the medical man concentrating his attention upon a specialty, and devoting his whole time to its study and observation, gains an amount of practical information on the subject of insanity which he could not obtain in any other way. The routine habits of the establishment tend to insure a more quiet demeanor, and a disposition on the part of the patient to be compliant to the wishes of others; and also to induce within himself the effort not only of self-control, but also to cultivate the power of repressing extravagance of thought, and keeping the emotions in subjection to the dictates of judgment.

The domestic management of the insane is defective in another important particular. There is a point in the convalescence, after the stage of excitement has passed away and the delusions have become dispelled, when the mind appears rational in all respects. To the skilled observer, however, complete restoration has not yet been attained. The exhausting effects of the disease upon the brain have not altogether vanished; and a certain period of time must elapse before this result is reached. In an institution, this period is as carefully attended to as the others. The recuperating faculties are kept within the limits of a judicious exercise, and in ways that are conducive to complete restoration. In the domestic management, on the contrary, this condition is the signal for the removal of all restrictions, and the patient is permitted to return to his former habits. The sequel often proves that the experiment was too much for his powers. The morbid process is reproduced in perhaps more than its original severity; and it is only after weeks or months of treatment, if ever, that the patient regains the ground that he has lost.

It is scarcely within the bounds of reasonable expectation to look for any rapid change of public sentiment in these matters, so little disposed are men to relinquish notions when once acquired; and we must be content to await the slow process of a gradual cultivation among the people. Yet it is within the province of each one who is actuated by a conviction that springs from honest inquiry to use his best efforts toward the establishment of an enlightened public opinion.

DR. JOHN DWYER said that the writer of the paper might have laid even more stress upon the fact that sane people are rarely confined in insane asylums. During an experience of twelve years in such an institution, he had never known of a single case, and of only three instances in which the matter of the patient's insanity was disputed. The popular impression is, therefore, altogether erroneous. In the public hospitals, particularly, the physicians in charge are much more anxious to get rid of patients than to keep them. As to the treatment received in these institutions, he thought it would be more successful if they were not obliged to take such a large number of patients. The plan of sending certain classes out among farmers, as is done in Belgium, might, perhaps, be of advantage here. Then, again, in the asylums there is often injudicious interference on the part of the friends of inmates just at critical times, when it does great injury.

DR. MACGREGOR mentioned certain peculiarities about the community of Gheel, in Belgium, which, it seemed to him, would militate against the success of adopting the plan here; but still, he thought the experiment one worth trying.

DR. IRA B. READ read a paper on

DOUBLE POPLITEAL ANEURISM.

The case upon which it was based was one in which the aneurism in one leg developed after the other had been successfully treated by ligation of the femoral artery, after various other expedients had been fruitlessly tried. Ligation of the femoral was performed in this instance also, and both tumors have entirely disappeared. From his experience he would lay down the rule, never to be departed from, that, when compression can be made in the artery above the diseased portion, it should always be resorted to as a means of lessening the danger consequent upon ligation of the artery. In popliteal aneurism, if compression of the femoral is made, the blood, being shut off from the latter, gradually distends the profunda and other smaller branches, and if, in the meantime, the surgeon can induce the formation of a clot within the aneurismal sac, so much the better. But, in case it is necessary to ligate the femoral, heat and nourishment, and sensation will thus be successfully maintained in the lower part of the limb, and the danger of gangrene avoided.

DR. J. W. S. GOULEY presented a number of specimens of

PAPILLOMA OF THE BLADDER.

The first was from a patient seventy-four years of age. There were no symptoms connected with the urinary apparatus until within a year or two of his death, when he was seized with a free hemorrhage from the bladder. Hemorrhage afterward recurred at irregular intervals, but always ceased spontaneously. At last he had a very violent attack during which he lost a quart of blood. In the bladder, which was exhibited, were found two villous growths with hard bases; while the vascular portions could be seen floating in the alcohol in which the specimen was preserved. Dr. Gouley said that when he first examined the tumors he thought that the bases were of a sarcomatous nature, and it was possible that this might be the case. The points of significance about this, as well as the other cases to be noticed were, that the hemorrhage was never constant, and that it was checked spontaneously.

The second case was that of a German, forty-five years of age, who was admitted to Bellevue Hospital, October 26, 1878. He had had cystitis twelve years before this, but the first attack of hemorrhage of the bladder came on just one year before admission. From that time on the hemorrhage was repeated irregularly, both as to quantity and frequency of occurrence. He died of pleurisy in January, 1879, and at the autopsy empyema was found. There was a slight deposit of tubercles at the apex of the right lung, and a gangrenous infarction in the lower lobe of the left lung; while in the upper lobe of the latter there was a cancerous formation. In the kidneys there was an advanced stage of pyonephritis with cystic degeneration. The ureters were both considerably dilated, and, in the bladder, which was markedly hypertrophied, three papillomatous growths were found. The bladder, ureters, and kidneys were exhibited.

In the third case the patient was about fifty years old, and had been under Dr. Gouley's care for about nine years, when he had his first attack of hematuria. The hemorrhage afterward recurred at irregular intervals, five or six months sometimes intervening between the attacks. Later the hemorrhages became more frequent. Bilateral cystotomy was performed, and a number of papillomatous masses were torn away with the forceps. The patient was relieved, but died at the end of three months from exhaustion and probably advanced renal disease. If another similar case should present itself, he said, he would operate simply to afford temporary relief.

The fourth case came under Dr. Gouley's care about a year ago, with the same history as the others. The diagnosis of papilloma was made in this, as in the preceding case, by removing a small portion of the growth through the urethra and placing it under the microscope, when the characteristic vascular structure was at once manifest.

The fifth case was that of a young physician whom he first saw about six months ago. As in the other instances, the diagnosis was made by removing a piece of the growth with a pair of small forceps; but the patient had as yet declined to submit to an operation. There had now been no hemorrhage for a considerable interval, but he felt confident that it would inevitably recur in time.

In the sixth case a small portion of the tumor came away in the eye of a catheter inserted into the bladder; so that he was enabled to make the diagnosis at once. The patient had had hemorrhages from the bladder at irregular intervals for two years, and when first seen, he had the appearance of a person suffering from advanced renal disease. Bilateral cystotomy was performed, and Dr. Leale was present at the operation. A complete evulsion of the tumor was made, the entire mass being removed in pieces, and the operation lasting about three-quarters of an hour. Fifty-four hours afterward, however, the patient died of uræmia.

In regard to the diagnosis of these tumors, it is worth while in all cases to pass into the bladder an instrument by which a small portion of the growth can be removed, and if this cannot be accomplished, to make an exploratory cystotomy and insert the finger into the bladder. The question naturally arises whether these growths are malignant or not. It was formerly supposed that they were, but there seems to be no good reason for such an opinion, as a rule, though in special cases there may be a carcinomatous element. Such tumors are not very common, but it is probable that they occur more frequently than is generally supposed. As to the evulsion, probably the safest instrument for this procedure is that devised by Mr. Reginald Harrison, of Liverpool, in the use of which it is easy to avoid grasping other tissues than the growth to be removed.

DR. JOSEPH D. BRYANT inquired as to the cause of the hypertrophy of the bladder in the second specimen exhibited.

DR. GOULEY said that whenever there is a foreign body, or a growth such as had existed in this case, in the bladder, concentric hypertrophy and contracture are apt to result, as time goes on, from the continuous efforts of the organ to get rid of its contents by contraction. In the first case the patient did not live long enough to have this concentric hypertrophy develop. In regard to the cause of these papillomata, he would say that he believed that in each case there is some previous lesion which gives rise to the condition. This may be but a slight abrasion of the mucous membrane, caused, for instance, by a small calculus, which afterward passes away, but the granulations resulting from such an abrasion will be sufficient to afford a starting-point for the villous growths. As to the intermittent character of the hemorrhage, this is probably to be explained by the fact that the denudation of the membrane covering the growths, which gave rise to the hemorrhage, was followed by an inflammatory process which blocked up the vessels, and thus prevented a further escape of blood.

DR. J. P. OBERNDORFER inquired whether he had in the diagnosis of these tumors made use of rectal examination, by introducing half the hand into the rectum.

DR. GOULEY replied that he had not, as he did not consider this procedure justifiable under ordinary circumstances, on account of the risk involved in it. Besides, it would be impossible to feel, through the thickened walls of the bladder, a soft growth of the character under consideration. A hard growth might be detected from the rectum, and in young subjects, where the prostate is so small, he is accustomed to practise digital exploration.

DR. T. J. HEARNEY said that he had at present under observation a case in which the symptoms resembled those described by Dr. Gouley. He doubted whether the operation would be followed by good results in patients accustomed to high-living, in whom there is a tendency to Bright's disease, on account of the danger of exciting an inflammatory process which would spread to the ureters and kidneys.

DR. BRYANT said that he had recently seen, in consultation, a case outside the State which he had every reason to believe was of the kind described by Dr. Gouley. At the time of his visit the patient was much prostrated; but he had advised perineal section as soon as his condition would warrant the operation. He would like to ask Dr. Gouley if there are not some definite symptoms which will enable us to make a diagnosis of papilloma of the bladder, as he thought it is now somewhat difficult to detect the condition. How is it to be distinguished from other affections of the bladder, such as stone, for instance?

DR. GOULEY expressed the opinion that a series of symptoms could undoubtedly be formulated which would be of sufficient diagnostic value. If there is a stone present, there may or may not be hemorrhage. It is, however, very infrequent in young subjects; and, therefore, when hemorrhage from the bladder occurs in a patient under forty, without any assignable cause, it is reasonable to suspect something of this sort. The peculiarity of hemorrhage resulting from papilloma, as he had previously pointed out, is that it comes on at irregular intervals, and stops spontaneously. Furthermore, as time goes on, the attacks increase in frequency and severity, and later there is cystitis; while the frequent contraction of the bladder in its efforts to expel this sponge-like growth gives rise to concentric hypertrophy of its walls. But he had brought forward something better than symptoms, viz., a crucial test of the condition. It is the duty of the surgeon to pass an instrument through the urethra, and with it remove a small piece of the tumor, and in this way he had now made the positive diagnosis of papilloma in four cases. There was nothing new in this procedure, however, as Civiale had done the same thing fifty years ago. When there is any doubt about the diagnosis, the exploratory operation through the perineum appeared to him perfectly justifiable.

THE PRESIDENT stated that, in justice to Dr. Gouley, it was his duty to say that in the case where Dr. Gouley mentioned that he had been present, a diagnosis of papilloma of the bladder had been as strongly asserted as was possible, and that Dr. Gouley arrived at his conclusions in this instance after a thorough examination of a minute portion removed at one of this previous exploratory examinations, and which consisted of a portion of the tuft from the cystic growth.

After a beautifully performed median cystotomy, he had, by invitation of Dr. Gouley, made a digital examination of the bladder through the perineal wound, and distinctly felt the papilloma, as it was situated at the right of the fundus of the bladder, and which at a subsequent operation was found to have been entirely removed by Dr. Gouley. The principal point of interest was the accuracy of the diagnosis.

DR. T. R. VARICK, of Jersey City, presented, by invitation,

A VESICAL CALCULUS OF UNUSUAL SIZE,

which he said he had removed from a lad fourteen years of age, on the 9th of December, by the bilateral operation. This stone weighed four ounces and four scruples, Troy weight, and was six and three-quarters inches in circumference in its longitudinal direction, and five and a half inches in its transverse. He had had it sawed open, and the section showed a nucleus of uric acid, surrounded successively by layers of urate of ammonia, triple phosphates, and urate of ammonia again. It had been six years since the first symptoms of bladder trouble were noted.

In operating, he had commenced with the left lateral incision; but, finding that this was insufficient, he had made a right lateral incision also, so that the external wound was somewhat of a V-shape. On account of the large size of the stone, he had found great difficulty in extracting it, and had, in fact, to follow the curve of the pelvis, and deliver it very much as if it had been a fœtal head. There was considerable shock from the operation, but the patient rallied speedily, and up to the present time (the twelfth day) he had progressed without an unfavorable symptom. On three days the temperature had gone up to 101°, but at all other times it had been entirely normal, The urine had been found to contain a large amount of mucus, some pus, and a small amount of albumen.

According to Sir Henry Thompson, the rule is, that in all cases where the stone weighs more than three ounces, the high, or suprapubic, operation is to be adopted; but in this case, on account of the elasticity of the soft parts, and the small size of the prostate, from the boy's age, he had decided to disregard this. After the operation he had applied hot water to the raw surfaces, and the wound was healing rapidly—in fact, too rapidly—since, on account of the condition of the bladder, he thought it better that the urine should find exit through the perineum for some time. The boy is certainly doing perfectly well up to the present, but whether there would be any resulting disease in the kidneys or not, he could not say.

DR. GOULEY said that this case affords a beautiful illustration of the extent to which young subjects will bear bladder irritation. He thought that the boy would get well, and that he would not have any pyonephritis. If the patient had been an old man, there would, undoubtedly, have been a fatal termination in a case like this, as there would have resulted disease of the ureters, followed by that of the kidneys. The good result here was due to the practical absence of the prostate. Personally, he said, he would not have dared to extract such a stone as this entire, but would, by all means, have broken it up into four or five pieces. There are instruments now capable of doing this, and if it cannot be accomplished otherwise, it may first be perforated in several places. This is a much safer procedure, and Malgaigne had called it "lithotriptric lithotomy." Dr. Gouley had given it the name of "lithoclastic lithotomy," which, he thought, is better.

He was glad that Dr. Varick had refused to perform the suprapubic operation, and he said that he would take this opportunity to offer his protest against this procedure. The high operation is a dangerous one, the mortality from it being very great; and, among the complications which are to be feared in connection with it, are the protrusion of the intestine from the wound, and infiltration of urine. It may be the present fashion, but it is one which will pass away, as it has already done three times before.

THE CHICAGO GYNECOLOGICAL SOCIETY.

Stated Meeting, November 17, 1885.

THE PRESIDENT, DANIEL T. NELSON, M.D., IN THE CHAIR.

DR. JOHN BARTLETT read a paper entitled

REMARKS ON THE TOXIC PROPERTIES OF SASSAFRAS.

He stated that, for some years past, he had had an intention of bringing before the profession reasons, rather feeble it must be admitted, for the supposition that the medicine under consideration has marked potency in a direction, so far as he knows, not suspected by medical men. Up to this time the declaration on the

part of standard writers that sassafras is a remedy of questionable power, and the fact that it is hawked about the streets and used freely as a tea all over the country, have caused him to refrain from bringing before a scientific body his limited experience presently to be detailed. But the recent declaration that this drug possesses toxic properties may justify him in making the following statement:

Years ago, he was called to a woman among the poorer classes, of good intelligence and education, who was having a miscarriage. Upon inquiring as to the cause of the mishap, with a prefatory reference to her poverty and already large family, she stated that she had induced the abortion herself—that she had done so on previous occasions. She had employed, she said, "what other women used," sassafras tea. She was surprised that he did not know of the property of sassafras as an oxytoxic. She spoke as if all her friends knew how to use it as an ecbolic, and she evidently looked upon it as a specific. Tea, she said, made from four or five pieces of the root, as large as the thumb and twice as long, would produce abortive effect.

A year or two later, he was called to a woman two months pregnant. For several days she had had symptoms of miscarriage of so pronounced a character that arrest of the process was doubtful. He found the patient very anxious to have a child; she disclaimed the intention of inducing abortion, and to all inquiries as to a possible cause of the hemorrhage, she gave answers which left him no further question except this: "Have you been drinking sassafras tea?" Surprised, she replied that for a week past she had used it at breakfast and supper. The proper remedies for her condition were prescribed, the possibly offending tea left off, and in twenty-four hours all was quiet *in utero*.

Further than this, his experience with sassafras as a possible abortifacient does not extend.

A study of the toxic effects of sassafras as reported by Dr. Hill, and here suggested, would seem to show a resemblance to three familiar articles, opium, strychnine, and ergot. In its action as a narcotic and sudorific, it resembles opium. In its property of inducing tetanic and clonic spasms, followed by paralysis, it is similar to strychnine. In its alleged power of exciting the uterus, it may be likened to ergot.

It may be of interest to call attention to the fact that the first reference to the use of ergot as an ecbolic was made by Stearns, in 1807, whereas it had been used by midwives certainly as early as 1688, and probably very much earlier.

DR. JAMES H. ETHERIDGE referred to the action of the oil of sassafras on the motor centres in the spinal cord supplying the uterus.

DR. EDWARD WARREN SAWYER said that in New England sassafras is a popular emmenagogue. Mothers are in the habit of giving decoctions of sassafras and tansy to their daughters in case of delayed or suppressed menstruation. Many of the essential oils produce the effects ascribed to sassafras by Dr. Bartlett. In the South, oil of sassafras is a popular remedy for uterine disease.

THE PRESIDENT inquired as to the chemical constitution of the volatile oils?

DR. H. P. MERRIMAN replied that many of the volatile oils are identical in chemical relations, but differ in physical properties. Such oils are *isomerides*. The essential oil of lemons, of bergamot, neroli, lavender, pepper, camomile, caraway, clover, etc., are isomerides of the oil of turpentine. Oil of turpentine is a hydrocarbon, possessing the formula $C_{10}H_{16}$.

DR. H. T. BYFORD was of the opinion that the oil of sassafras exerts its influence locally upon the alimentary canal and pelvic viscera, rather than upon the uterine nervous centres, as in the case of ergot. This would account for its popularity as an emmenagogue, mentioned by Dr. Sawyer. He had recently given one drop, combined with one-half grain of piperin, every three hours, for two weeks, in a case of typhoid diarrhœa. Slight strangury, disappearing with the discontinuance of the drug, was produced.

DR. CHARLES WARRINGTON EARLE presented, for Dr. Joseph Haven,

A TERATOMA,

corresponding in development to the third month, and bearing an asserted resemblance to a pup.

Dr. Haven had attended the family of Mrs. H. for the past four years. During this time he had had occasion to notice that the younger daughter was a person unusually strong in her likes and dislikes, of a nervous temperament, slight build, yet a sensible, educated, and attractive girl. On the 8th of September, 1885, this young lady, in company with her sister, called at his office to consult him with reference to her condition. He made the following entry in his case-book, as the result of her visit:

"Mrs. D., nineteen years old, married one and one-half years, always regular as to her courses up to July 21st; since then no show. Physical signs point to pregnancy in the sixth week." A few days later he saw her again. She was nervous and highly excited—almost hysterical. She told him, in an excited manner, that a dog had jumped on her, and that she "hated dogs." She complained of pain in the abdomen, low down. From that day until the 1st of November Dr. Haven saw her several times. Each time she was threatened with miscarriage, and each time she declared she was positive she could never carry that child. Her husband and sister told him that, asleep or awake, her mind seemed to dwell continually upon that dog; that she daily wondered if the child would be marked. Mr. D. said that ever since he had known her she has been afraid of dogs; she would always cross the street rather than meet one, and he has often jokingly refused to take her out with him, telling her, as an excuse, that they might see a dog, and she would make a scene.

On the night of November 1st, the husband roused Dr. Haven, desiring him to go over and see his wife, thinking it to be only a repetition of former attacks. An examination proved that Mrs. D. was about to lose the contents of the uterus. She was flowing constantly. The os had dilated slightly, and Dr. Haven could just reach the presenting part. The history of the miscarriage was the usual one, and the result was seen in the specimen presented. She insisted on seeing the fœtus, and declared it to be the image of the dog that had frightened her.

A general discussion upon the subject of maternal impressions followed.

Dr. Charles Warrington Earle presented specimens from

A CASE OF ARTIFICIAL ABORTION.

The fœtus corresponded in development to the fourth month of pregnancy, and was not decomposed. It was closely enveloped in the membranes, and entire absence of the liquor amnii was noticed. Hemorrhage into the placenta and decidua was not observed.

Mrs. F., American, has given birth to five children, the youngest twenty months old; labors always normal; has a history of anæmia for some months', if not years', standing; last menstruation ended May 20, 1885; in June, had a very slight discharge of blood; during the weeks following she would occasionally lose a small amount of blood: at other times there would be profuse hemorrhage, lasting twenty-four hours. She had at one time a white, sticky discharge, something like the albumen of an egg. October 1st, began to flow constantly, with some pain in back and sides, particularly the left. Was seen by Dr. St. John October 12th, at which time he exhibited the usual styptics with rest. She continued to flow, with pain, for another week, when hemorrhage was so severe, and prostration so pronounced, and with the suspicion of placenta prævia, it was decided that temporizing means should cease. After consulting with Dr. Earle, it was decided to induce labor. A catheter was introduced, and allowed to remain twenty-four hours, when pains came on, and the patient was delivered October 17, 1885. During the entire period of gestation the woman could not detect the usual signs of her former pregnancies. She made a good recovery, and menstruated November 20th, There had been no discharge of water perceptible to the patient during the entire period of pregnancy.

Dr. W. W. Jaggard thought Dr. Earle's case was a typical example of the condition technically termed *mummification*. The fœtus dies, and the fluid constituents of its body and envelopes are gradually resorbed. Mummification is usually observed in connection with twin pregnancies. One child is usually perfectly developed, while the other is converted into a mummy-like object. *Maceration* and *mummification* of the fœtus are observed when the membranes are intact; *putrefaction*, after rupture and entrance of air into the uterine cavity. Dr. Earle's case was, probably, not an example of that rare condition, abnormally small amount of amniotic fluid. There were no abnormal amniotic foldings, nor were the fœto-amniotic bands described by Simonart present.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, December 22, 1885.

The President Charles McBurney, M.D., in the Chair.

Dr. L. S. Pilcher read a paper on

ARTERIAL LIGATION AS A PROPHYLACTIC MEASURE AFTER SUDDEN, COMPLETE, AND PERMANENT OCCLUSION OF THE CHIEF VEIN AT THE ROOT OF AN EXTREMITY.

This subject depends for its interest and importance on these two questions:

1. When the chief vein of an extremity has been suddenly, completely, and permanently occluded at its root, are the collateral venous blood-paths always sufficiently ample to admit such a flow of blood through them that permanent circulatory and nutritive disturbances will not supervene? and

2. If in any appreciable proportion of cases, permanent circulatory and nutritive disturbances are likely to supervene upon such venous occlusion, what prophylactic effect, if any, would be exerted by the diminution of the force and volume of the arterial blood supply of the limb?

Each of the modifying conditions which have been specified in connection with the occlusion of the vein, are of importance. It must be sudden, for the tendency of the collateral venous branchlets readily and rapidly to enlarge *pari passu* with any encroachment upon a main venous channel, is such, that if the encroachment is gradual in its progress, by the time it has become complete, a very considerable enlargement of the collateral blood-paths will have been accomplished, with a corresponding diminution of any danger of circulatory embarrassment as a consequence.

In the consideration, therefore, of any clinical observations which may seem to have a bearing upon the questions raised, those cases cannot be considered as having much weight, in which a preëxisting tumor has for some time pressed upon, or possibly enveloped the vessel previous to its final complete and permanent occlusion.

The occlusion must be complete in order to supply the conditions requisite to produce sufficient embarrassment to the return circulation to awaken solicitude as to its ultimate consequences, while upon the permanence of the occlusion will depend the importance of an early resort to any measure that may possibly be prophylactic against consequent disability, the permanence of which could alone make their prevention a matter of anxious care.

After this preface, he took up the first question suggested: *Are the collateral venous blood-paths always sufficiently ample to admit such a flow of blood through them, in case the chief vein of the extremity has been suddenly, completely, and permanently occluded, that serious permanent circulatory and nutritive disturbances will not supervene?*

As bearing upon the reply to this, he called attention to certain anatomical considerations.

Sappey[1] states that "copious collateral communications exist between the large vein-trunks of the neck and at the root of the upper limb; channels always open, always adequate, and instantly responsive to calls upon them." He also adds: "If one of the great veins at the root of the neck is opened, the surgeon may ligate it without fear of interrupting the current of the blood."

This opinion, however, seems to be based upon a very limited number of experiments. If it were absolutely correct, there would be no occasion to include further the upper extremity in the consideration of the question proposed.

As to the lower extremity also, the statement has been made by Nicaise,[2] who based his statement, however,

[1] Sappey: Traité d'Anat. Descript., 1869, t. ii. p. 694.

[2] Nicaise: Des Plaies et de la Ligature des Veines, Thèse, 1872, p. 113.

on a single experiment in addition to previous experiments by Sappey, that, "after ligature of the femoral vein at the root of the limb, the return circulation is abundantly assured; although at the same time these experiments also show," he says, "that the anastomotic communications between the lower limbs and the trunk are less free than those of the upper limbs." With this conclusion, similar experiments by Richet[1] and Verneuil[2] coincide. Braune[3] (Leipzig), however, has claimed as the result of anatomical, experimental, and literary investigations, that usually the femoral vein has no collateral branches to conduct blood from the lower extremity to the abdominal cavity in case of its occlusion. In his experiments he failed, with an injection pressure of 20 mm. of mercury, to drive fluid from the peripheral branches of the femoral vein into the pelvic veins after ligation of the main trunk, in normal young subjects. He was more successful, however, on increasing the pressure.

The more recent and numerous experiments of Braun,[4] of Heidelberg, give more exact and reliable data on this question of the blood-paths collateral to the femoral vein. Forty experiments were made by this observer to test the readiness of the flow of fluids from the peripheral veins of the lower limbs into those of the pelvis, after ligature of the femoral at Poupart's ligament. In one, the injection passed into the pelvic veins with the greatest readiness, at a scarcely appreciable pressure, equalling at the most not more than 10 mm. of mercury thus demonstrating already existing collateral venous passages quite adequate to perform the function of the femoral vein itself. This was readily explained by the fact that there was present in this cadaver on the side operated upon, a long-existing glandular inguinal tumor, the gradually increasing intermittent pressure of which upon the femoral vein had occasioned a dilatation of the collateral branches. In seven others, a slightly higher pressure, ranging from 10 to 20 mm. of mercury, sufficed to drive considerable fluid into the pelvic veins, the obturator and ischiatic veins being the most common channels, but in some cases the median sacral, the circumflex iliac and the lumbar veins shared in the current. In eight other instances, a pressure of from 50 to 70 mm. was needed. In still other eight, from 70 to 120 mm. were required. In yet another group of eight, the pressure had to be raised to heights ranging from 120 to 150 mm. before success was secured. Of the remaining eight, in two cases a still further increase of pressure to from 150 to 170 mm. finally caused the injection to penetrate, but in the other six, occurring in four different individuals, absolutely no communication between the femoral vein and the pelvic veins could be established, notwithstanding a pressure of 200, and in some cases 300 mm. was kept up for an hour.

A review of these results by Braun, shows that in one-fifth of the total number of experiments, an injection pressure, not exceeding the normal pressure of the capillary blood-current (20 mm. Von Kries), sufficed to return fluid with considerable freedom into the veins of the trunk, notwithstanding the occlusion of the femoral. In these cases it may be accepted that no circulatory disturbances would have been manifested had sudden occlusion of the vein taken place during life. In the next one-fifth, in which a pressure double and treble the normal capillary was required, it may reasonably be allowed that in the living subject this extra force would have been so far supplied by the natural accessories to the venous current, muscular pressure, aspiration, and, possibly, gravity, that any marked or prolonged venous engorgement or capillary embarrassment would have been escaped, as in the first group of cases.

In the third and fourth groups, however, being two-fifths of the whole number, the high pressure required was such as would certainly have entailed marked circulatory disturbances in case of sudden occlusion of the vein during life. In the last group of cases, being likewise one-fifth of the entire number, in the two instances in which any permeability was secured, it was only by a force in excess of the maximum normal arterial pressure in man (150 mm.), while in the greater number a very much higher pressure failed absolutely. In these cases there was no possibility of the return of blood from the limb through any preëxisting collateral channels. Gangrene of the limb would have been inevitable, unless in some way the amount of blood pouring into the limb could be diminished, during the gradual opening up of new channels.

A similar careful and sufficiently extended series of experiments upon the axillary and subclavian veins is very desirable. The few experiments which have been above referred to, as made by different French observers, are by no means sufficient in number to warrant any general conclusion.

Dr. Pilcher then presented certain clinical considerations, with regard to the effects upon the circulation and nutrition of the arm which have followed sudden occlusion of the axillary vein higher up, or of the subclavian. He had not attempted to compile any statistics, nor did he know of any attempt to collate the results, so far as the after-nutrition of the arm is concerned, in any very large number of instances out of the many in which ligature of the axillary vein has been done in the course of operations for extirpating tumors from the axilla. In by far the great majority of such cases, it must be that no serious circulatory embarrassment has been experienced, a freedom that would naturally have been expected in view of the usually abundant collateral channels. But that complicating conditions may produce a different result, the following case in his own experience demonstrated, a case which first attracted his attention to the possible results of venous occlusion, and the question of how to obviate them.

Case I.—In January 1881, in the course of an operation for removal of carcinomatous axillary glands, being a recidive at the end of two years and nine months after the primary removal of the breast, it was necessary to sever the subscapular vein close to its entrance into the axillary; this was done, and the axillary vein itself was then tied by ligatures placed one above and one below the opening in its lateral wall thus made. The patient made a good recovery, and survived the

[1] Richet: Traité Pratique d'Anatomie Medico-Chirurgicale, deuxième edit., Paris, 1860, p. 161.

[2] Verneuil: Bull. de la Soc. de Chirurgie, 1855–56, t. vi. p. 217.

[3] Braune: Die Oberschenkelvene des Menschen, Leipzig, 1871, S. 20.

[4] Braun: Die Unterbindung der Schenkelvene am Poupartschen Bande., Archiv f. klin. Chirurg., Bd. xxviii. Heft 3, S. 610.

operation for five and a half years. Very shortly, however, after the vein ligature was done, an œdema of the forearm and lower part of the arm began to develop. This was accompanied with much aching, aggravated in moist and changeable states of the weather; the functional power of the limb, also, remained permanently impaired. This condition persisted without amendment during the remaining years of her life, and became much aggravated during the days of general prostration immediately preceding her death. In this case, in addition to the ligature of the axillary, there was simultaneous ligature of the subscapular branch as well, and also of other branches of less importance that were divided in the course of the process of clearing out the axilla. This must have diminished considerably the number of the collateral channels. But, practically, inasmuch as it is in just such cases that ligature of the main vein is most likely to be also required, this case is fairly illustrative of the conditions which require to be taken into consideration in connection with the occlusion of the main vein at the root of the upper extremity. It is obvious that, whatever may be the adequacy of the provisions for the collateral venous circulation, if simply the main trunk is occluded near its root, the case may be quite otherwise when more or less of the collateral branches have likewise become simultaneously occluded. In further illustration of this, he cited the following case:

Case II.—In April, 1885, he had occasion to remove an egg-sized carcinomatous glandular tumor at the root of the neck, in the right subclavian triangle. This was the proximal portion of a recurrent growth which likewise involved the glands of the axilla and the cicatrix left by the removal of the right breast for carcinoma two and one-half years previously. The excision of the cicatrix with the tissue adjacent that was infiltrated, and the cleaning of the axilla, were accomplished without accident other than the necessary severing of certain of the lesser veins of the axilla. The growth above the clavicle was next attacked. By the preliminary incisions for uncovering it, the external jugular vein, and the transversalis colli and suprascapular vessels were divided. The growth was deeply fixed behind the clavicle, and the infiltration of the circumglandular connective tissue was such as to negative easy enucleation, while traction was being made to lift it from its bed, after the outer portion had been freed, a sudden copious venous hemorrhage occurred from beneath and to the inner side of the growth. While this was controlled by properly directed pressure, the final removal of the tumor was accomplished. Examination now revealed that a rent had occurred in both the internal jugular and the subclavian veins, the inmost point of the growth having been embraced by these veins as they converge. Ligatures above and below the points torn were applied to each vein. He had now to deal with an occlusion not only of the internal jugular and of the subclavian within an inch of their junction, but also of the external jugular, and the transverse cervical and suprascapular veins, and of numerous smaller axillary branches. It was extremely improbable that the minute collateral communications that existed could enlarge with sufficient rapidity to return any considerable proportion of the blood which was being driven into the extremity through the axillary artery; already the limb was becoming blue and swollen, and the veins which were exposed in the axillary and cervical wounds were turgid with blood, as if under great pressure. The immediate danger was evidently from the continuous forcible distention of the extremity with arterial blood. To meet this supreme indication, he at once placed a ligature on the axillary artery in its upper part. The limb was then bandaged with a roller bandage, and proper dressings were applied at the seat of operation. The after-history of the operation wounds was uneventful. Union by first intention throughout the very extensive wound-tract, was secured, except at two points in the neck, where slight suppuration took place about some of the ligatures.

Twenty-four hours after the operation, the patient had experienced no pain in the head or elsewhere. The face was somewhat flushed, especially on the side of the ligated internal jugular. There was no swelling nor lividity of the fingers of the hand of the operated extremity, which was normally warm. The patient said, however, that the hand felt as if its veins were full.

During the second week a considerable œdema of the forearm manifested itself; bandaging and rubbing were employed to dissipate it, but it persisted without much change for about three weeks. It then rapidly diminished, so that at the end of eight weeks it had entirely disappeared. Meanwhile, the arm had regained much of its functional power, so that the patient was able to perform ordinary domestic work. Since this time her general strength and well-being have continued to improve. The arm is well-nourished, and though there is no apparent œdema, it seems somewhat more plump than its fellow. The radial pulse is still imperceptible. There are as yet no signs of recurrence of cancerous disease.

Such a case as this illustrates the statement that the question as to the adequacy of collateral channels when the main vein at the root of an extremity is suddenly occluded, as it is likely to confront the surgeon, may be a different one from the simple experiment of the anatomist when the latter isolates and ligates the axillary or subclavian vein alone, and then proceeds to throw in his injection. The two clinical observations just detailed justify the surgeon in the apprehension that permanent circulatory and nutritive disturbances of a serious character may ensue, when in the course of operations in the axilla or at the root of the neck, in addition to the division of a considerable number of lesser collateral branches, the main vein is also completely occluded. In the second observation it is true that the operator did not delay for the full development of the circulatory and nutritive disturbances which he had reason to apprehend would follow the extensive vein ligations which had been done, but proceeded at once to employ the only resource in his power for the diminution of the force and quantity of the inflowing stream of blood. Reference to the after-history will show, however, a train of circumstances, even more instructive than would have been the occurrence of a general gangrene of the limb from venous strangulation. It is apparent that production of free collateral inlets for the arterial supply was more speedy than the development of the corresponding venous outlets, whence the œdema that showed itself during the second week, and its persistence for some weeks, until the

slowly enlarging venous channels had become adequate, when it fully and finally disappeared.

With regard to the effect upon the circulation and nutrition of the lower extremity produced by occlusion of the femoral vein at the root of the extremity, the researches of Braun[1] have placed at our disposal a sufficient number of clinical observations to admit of deductions of practical value.

Of the 37 cases which Braun has collated, there are 18 in which ligature of the femoral vein alone, at the level of Poupart's ligament, was practised. Of these, 13 cases occurred as the result of wounds inflicted in the course of operations for the removal of inguinal tumors.

In none of these tumor-extirpation cases did gangrene ensue. In six of them the circulatory disturbance was either very slight and transient, or was absent altogether. In five others, though there was at first considerable cyanosis of the limb, it soon disappeared, leaving the limb entirely normal, or with but slight œdema. Two cases are recorded simply as having ended fatally, one by pyæmia, the other by inanition, without statement as to circulatory disturbances. Four deaths occurred among the other cases also from such causes as secondary hemorrhage, pyæmia, and pulmonary œdema.

These results corroborate the statements made in the earlier part of this paper as to the effect upon the development of collateral venous channels exerted by the pressure of a tumor in the groin upon the main trunk. The difference in this respect between an inguinal tumor and an axillary tumor is manifest. In the latter, the loose tissues of the axilla, and the position of the tumor on a plane below that of the vein, favor the considerable development of the growth without subjecting the axillary vein to pressure. Not so in the groin, where the denser tissues, the force of gravity, and the alternating states of tension and relaxation occurring in the flexion and extension of the thigh will very early cause a tumor to interfere with the free passage of blood through the underlying vein.

Five cases remain in which, as the result of acute injuries, high ligation[2] of the femoral vein alone was done.

The difference between the results precipitated in these acute cases and those in which preëxisting inguinal tumors had been present, is remarkable. In one only of the five was the recovery without disturbance. One died from septicæmia three days after the ligation, but without the appearance of gangrene; whether any less profound circulatory disturbance took place, or not, is not recorded. In one the limb became œdematous, with death by pyæmia; in the remaining two, fatal gangrene rapidly supervened.

[1] H. Braun: Die Unterbindung der Schenkelvene am Poupartschen Bande. Archiv f. klin. Chirurg., Bd. xxviii. Hft. 3, S. 610.

[2] I include in this class one case (that of Busch, 1870, being No. 32 of Braun's collection) in which the external iliac artery had been ligated forty days previously, and in which after that period of time, in the attempt to control a secondary hemorrhage, the femoral vein was wounded and tied. The reason for this, is that so long a time had elapsed since the primary arterial ligation, that a sufficient arterial collateral circulation had been established to restore the condition of the arterial supply of the limb to nearly its original fulness. The conditions were thus entirely different from those which would have been present had simultaneous ligation of the vessels been done originally.

In addition to these cases, he related a new observation, communicated by Dr. Wm. Browning, of Brooklyn, since it is closely allied to this class of acute cases.

Case III.—In 1881, in the course of an operation for the extirpation of a suppurating bubo, in a young man of about twenty years of age, the internal saphenous vein was wounded, and for the control of the hemorrhage a ligature was placed upon it close to the main femoral trunk. The patient recovered without special untoward symptoms, until he began to be up, when an œdema of the leg developed, which after long continuance in the upright position would become so great as to distend the whole limb up to the hip. During the night the swelling would largely disappear. At the expiration of about six months, when last seen, the tendency to œdema was still so great that he was unfitted for any work, and he begged for the removal of the limb.

Whatever the character of the obstruction to the venous return may have been in this case, it was sufficient to demonstrate positively the insufficiency of the collateral channels at the root of the limb.

The considerations, anatomical and clinical, which have now been presented, seem to me to be sufficient to justify the surgeon in the apprehension of serious circulatory and nutritive disturbances after sudden and complete occlusion of the root vein of an extremity; of the upper extremity, when the occlusion of the main vein is accompanied also by the simultaneous occlusion of any considerable number of the lesser and collateral venous channels; of the lower extremity, when the occlusion is sudden, and has not been preceded by any conditions which might have occasioned a preliminary enlargement of collateral channels, or the development of new ones.

Dr. Pilcher then proceeded to the consideration of the second question propounded, viz., *What prophylactic effect, if any, would be exerted by the diminution of the force and volume of the arterial blood supply of the implicated limb?*

The celebrity of two cases where ligature of the femoral vein, consequent upon acute injury sustained, had been followed by speedy and fatal gangrene of the leg, and the wide diffusion of the account of a case in which an obstinately recurring hemorrhage from wounds of the femoral vein, and many collateral branches, had been at once controlled by ligature of the femoral artery, with uninterrupted recovery thereafter, have served to give the procedure of simultaneous arterial ligation a status as an authorized procedure in cases of wound of the femoral vein. The cases referred to are the well-known cases of Roux and Linhart, and of Langenbeck. Following this trend of surgical opinion, Lidell, in 1883, in his article on "Injuries of the Blood-vessels," in *The International Encyclopedia of Surgery*, vol. iii. p. 213, says: "When hemorrhage from the common femoral vein makes deligation of that vessel necessary in order to stop the bleeding, the common femoral artery should also be ligated in most cases, in order to equalize the circulation.

But Braun had already, in the article of which so much use has been made in this paper, protested against this procedure as one which appeared to him to be dangerous to the patient, and neither sufficiently

warranted by clinical experience, nor by anatomical investigation or experiment on the cadaver.

Fortunately, the industry of this observer has furnished to us both the results of extended experiments on the cadaver, and of a full compilation of recorded clinical experience. Thus it is possible for anyone to analyze and make the basis of his own conclusions.

Pursuing his own analysis of these cases, he takes up those in which arterial ligation has been performed, either as a remedy for wounds of the femoral vein or in consequence of a simultaneous arterial wound, and compares the results with those in which the vein alone was ligated.

Eleven cases are reported in which such arterial ligation was done for the relief of wounds inflicted in operations for the extirpation of inguinal tumors. In two of these the artery alone was tied; the first is the case of Langenbeck, already referred to, which proceeded to an uninterrupted cure; the second was one of Kuester's, where the wound in the vein had been temporarily secured by hæmostatic forceps; the removal of these after twenty-four hours having been followed by renewed bleeding, Kuester proceeded to tie the femoral artery. This stopped the bleeding, but was followed by a rapidly progressive fatal gangrene. Of the nine cases in which both the vein and the artery were ligated, there were five cases of gangrene, one only recovering after amputation. Of the four cases in which no gangrene appeared two died from pyæmia, and one from secondary hemorrhage, leaving but one perfect recovery out of the entire class. This is in marked contrast with the results obtained in the same class of cases from simple ligature of the vein, and abundantly justifies the opinion, that in this class of cases ligation of the common femoral artery is dangerous to the patient, and unwarranted by clinical experience.

When we turn to the class of acute injuries a somewhat different result is found. Here are seven cases; in two of these the artery alone was tied, one followed by fatal gangrene, the other, although escaping gangrene, succumbing to pyæmia. Of the five remaining cases two recovered with little or no circulatory disturbance, three developed gangrene of the limb, of which two died and one recovered after amputation. If we compare these with the cases of the same class in which simple ligation of the vein was done, and take the cases of gangrene alone into account, pyæmia being regarded as a preventable accident, it appears that where the vein alone was tied, two out of five developed gangrene; where the artery was tied, either alone or simultaneously with the vein, four out of seven developed gangrene. These numbers are not large enough to settle the question positively, but so far as they go they likewise discourage the practice of ligation of the common femoral artery as a prophylactic measure after wounds of the femoral vein high up, even in acute injuries.

The case of simultaneous ligation of the femoral artery and vein which the writer presented to this Society one year ago[1] lacks, in an important particular, the requisites necessary to enable him to use it for purposes of comparison with the cases under consideration. On account of the conditions under which the ligations were made, he determined at the time of the operation the exact relative location of the vein wound, but his belief has been that it was below the point of entrance of the internal saphenous. Such being the fact, the relation of the case, as regards the amplitude of collateral channels, is quite different from those in which a ligature is applied at the level of Poupart's ligament. Whether, also, the arterial ligature involved the common femoral or the superficial femoral must be a matter of doubt. This, however, is worthy of note in this connection, that during the first few weeks after this patient began to go about, a considerable œdema of the leg and thigh manifested itself. This entirely disappeared within a few weeks, and the man has ever since remained free from disability from the injury. The case, nevertheless, will be found to have an important bearing, as indicating a rational course of action to be pursued in the graver forms of the accident under consideration.

The extreme gravity of a wound of the femoral vein above the opening of the internal saphenous vein, in cases where there has been no preëxisting inguinal tumor, is seen in the fact that, of the twelve cases which have been analyzed, one-half developed gangrene, all with a fatal termination except in one case in which amputation was followed by recovery. This fatal gangrene is due to acute venous strangulation of the limb. The immediate question which confronts the surgeon, therefore, is, how to prevent this, or to determine its intensity until a sufficiently free return of the venous blood is in some way provided for. Simultaneous ligation of the accompanying main arterial trunk has been shown by experience to increase the rate of mortality. Why this should be so, it is not difficult to understand, for to diminish to an extreme degree the arterial supply to a part the nutrition of which is already seriously compromised by general venous stasis, would certainly tend to precipitate and aggravate the threatened necrosis.

Braun (*loc. cit.*) founds his chief objection to the arterial ligation, on the fact that it deprives the arrested venous current of the *vis a tergo* which a full arterial current, bounding into the vessels of the limb, could exert, and by means of which he believes that in some cases the chief collateral branches could be sufficiently distended to admit an immediate adequate collateral flow to take place through them. If this theory were correct, an increase rather than a diminution of the arterial pressure in a limb would be an object to be sought in cases of the kind under consideration.

The physiology of the establishment of new collateral ways is, however, of quite a different character. It is by the dilatation and development of many previously minute and insignificant vessels that the new ways are established. Indeed the experimental results of the anatomists referred to in the earlier part of this paper, show that penetration of injected matters from the veins of the lower limb into the pelvic veins after ligation of the femoral, is not accomplished by overcoming definite valve-barriers, and thus gaining access at once to wide paths, for if a thick and solidifiable injection material is used, no penetration is observed, but when a different liquid, like turpentine colored with vermilion (Sappey and Nicaise), is used, then it flows with facility, for it now obtains entrance into a multitude of minute branches from the trunk into

[1] Annals of Surgery, vol. i. p. 167, Feb. 1885.

which it is first thrown, and then by multitudes of inosculating venules, it is received and carried on until it is gathered together again in the larger veins that emerge within the pelvis, and finally convey it to the ascending vena cava. In the living subject, the same phenomena are witnessed in every congested area, where the rapid enlargement of previously minute and invisible vessels quickly supplies a part with a copious network of vessels now plainly discernible and capable of transmitting a greatly increased volume of blood. If the inundation of blood is more rapid and intense than can be provided for by this vascular dilatation, necrosis must take place, just as upon a larger scale it does in so large a proportion of the cases of sudden occlusion of the femoral vein at the level of Poupart's ligament.

In cases of the accident in question, the greater the arterial *vis a tergo*, the greater the danger of overwhelming and fatally blocking the somewhat inefficient collateral radicles; while, if ample collateral paths exist, it is unnecessary; where less immediately available collateral paths exist, it becomes an element of danger just in proportion to the absoluteness of their insufficiency.

The idea, therefore, of obtaining benefit, in any case, from the preservation of the full arterial pressure upon the circulation of a limb, the chief vein of which has become occluded at its root, need never be entertained by the surgeon.

Having disposed of this consideration, the way is more clear to arrive at a conclusion as to what course is most likely to prevent the choking of the limb with blood, while the nutrition of the limb is still sufficiently provided for.

In the case of the lower limb, he suggested as a rational resource, and the one least likely to entail new dangers, ligation of the superficial femoral artery. If this vessel be ligated, while the quantity of blood and the force of the current through the limb will be very materially diminished, the amount of blood supplied to the limb will still be quite sufficent to provide for its nutrition.

Ligation of the superficial femoral artery is worthy of trial as a prophylactic measure in any case where sudden complete occlusion of the femoral vein has occurred at the root of the extremity. It is a rational means of accomplishing the immediate indication for lessening the amount of blood sent into the limb. As an example in support of this practice, my own case can now be cited; in this case the occlusion of the vein was at such a height that considerable œdema showed itself, and persisted for some weeks after the patient began to walk about, although none had manifested itself while he was recumbent. The fortunate absence of serious disturbance of any kind in the limb during the early weeks after the ligature of the vein, and the comparatively speedy and definitive disappearance of the œdema, are fairly attributable to the slight disturbance in the equilibrium of the arterial inflow and the venous output which the ligature of the superficial femoral secured. It is hardly necessary to state that in those cases in which a simultaneous wound of the common femoral artery and vein has occurred, there is no choice of procedure but to ligate at the point of injury. In such cases it is especially important that the vein wound be closed, if possible, by a lateral suture or lateral clamp, so that complete occlusion of the vein may be avoided.

Recurring to the upper limb, since abundant experience has shown that the nutrition of that limb is not hazarded by a ligature applied to the axillary artery, ligation of that artery may unhesitatingly be performed as a prophylactic measure in cases in which diminution of the arterial supply to the limb seems desirable in consequence of extensive occlusion of the venous outlets at its root.

The final conclusions reached as the result of the foregoing discussion may finally be profitably stated in the following recapitulation:

1. Serious circulatory and nutritive disturbances are to be apprehended:

a. In the upper extremity, when, in addition to the occlusion of the main vein at its root, simultaneous occlusion of any considerable number of the lesser and collateral branches has also taken place.

b. In the lower extremity, when the occlusion of the main vein at its root is sudden and complete, and has not been preceded by any conditions which might have occasioned a previous dilatation of collateral channels or the development of new ones.

2. The accidents of excessive œdema, and of gangrene, when they occur, are due to the intense and active congestion of the limb through increments of arterial blood for which there is no adequate outlet.

3. The development of collateral paths is not effected by the breaking down of valve-barriers at the entrance of large collateral trunks, but by the dilatation of a multitude of minute branchlets. To effect this, an increased arterial *vis a tergo* is not required. Any increase in the normal blood pressure is attended with danger of overwhelming and fatally choking up the somewhat slowly enlarging collateral radicles.

4. The diminution of the amount of arterial blood which enters a limb of which the chief venous outlets have become occluded, to an amount not greatly in excess of that which can readily find an outlet from it through paths still remaining, is the first great indication to be fulfilled in the treatment.

5. Whatever method is adopted to restrain the flooding of a limb with arterial blood, it must still permit the entrance of a supply sufficient for the nutrition of the limb. For this reason, in the lower limb, ligation of the common femoral is to be avoided, especially in the light of the disastrous results of such ligations already recorded.

6. Ligation of the axillary artery in the upper extremity, and of the superficial femoral in the lower, are safe expedients, and to be adopted as prophylactic measures, whenever occlusion of the venous outlets of a limb is so great as to hazard the integrity of the limb by reason of the circulatory stasis produced.

DR. POST remarked that he had never seen a case of gangrene following ligature of the superficial femoral artery for circumscribed popliteal aneurism.

DR. SANDS felt sure that he had seen such a result in hospital practice, although he could not at that time instance a case.

DR. STIMSON remarked that when he collated statistics on ligation with catgut, he found twenty-eight or twenty-nine cases, and the only one in which gangrene followed was that of Dr. Sands, in which the common iliac was ligated.

DR. FLETCHER asked, what disturbance if any, had oc-

curred in the arm where it had been necessary to tie the axillary vein.

Dr. Weir had had one case in which ligation of this vein was required, but the answer did not help the reader of the paper at all, because the patient died of pyæmia.

In another case, the vessel was wounded and tied laterally. Thrombosis and embolic process occurred, which resulted in the destruction of the eye of the same side. In this case the patient recovered with no disturbance of the circulation in the arm.

It is interesting, perhaps, to refer to a case which occurred under the late Dr. Mason's charge, that of a stab wound high up in the thigh, by which there was a communication formed between the artery and vein, and for which he put the patient under ether, and kept up compression for eighteen hours, at the brim of the pelvis, sufficient to close both artery and vein, without doing damage to the limb, although it failed to cure the arterio-venous aneurism.

During the war he had a case of gunshot wound at the edge of the groin, in which it was found afterward that the missile had torn the vein across and occluded the artery; gangrene and death resulted.

Dr. C. K. Briddon referred to two cases of thrombosis of the iliac vein occurring in men. The cause was very obscure. The limbs in both cases were the seat of a solid œdema which did not pit at all. One case occurred ten years ago, and the limb is still larger than the other. The circumflex veins are enlarged, and can be seen pursuing a tortuous course beneath the skin. The œdema was not that commonly met with in ordinary obstruction of the veins, such as is seen with secondary growth of cancer of the axilla, but was a growth of the limb.

He had not seen gangrene follow occlusion of the artery for popliteal aneurism, and he had ligated the superficial femoral for this purpose in eighteen cases. In one of these cases, in the New York Hospital, Dr. Buck subsequently tied the deep femoral, the external iliac, and the common iliac, but gangrene did not occur in the limb.

Dr. Sands said that in Bellevue Hospital, some years ago, a man was admitted under the care of one of his colleagues with a wound of the femoral artery and vein. The bleeding was arrested, but gangrene set in and rapidly carried off the patient.

Dr. Pilcher, as bearing upon the possible effect in these nutritive disturbances which ligation of the artery might induce, narrated a case which occurred ten years ago, that of a young woman who had enlargement of one leg and thigh, similar to that described by Dr. Briddon. In that case it was evidently due to venous obstruction. He ligated the superficial femoral, and the immediate result was very great improvement. As she then passed from his observation, he was unacquainted with her later condition.

Dr. Briddon remarked that in the two cases which he had mentioned, he regarded the enlargement as a hypertrophy due to slowing of the blood stream or obstruction in the femoral vein.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirteenth Annual Meeting, held at Washington, D. C., December 8, 9, 10, and 11, 1885.

(Specially reported for The Medical News.)

Friday, December 11th.—Fourth Day.

The Advisory Council, through Dr. Rohé, of Baltimore, reported that

THE NEXT ANNUAL MEETING

of the Association would be held in Toronto, Ontario, on the first Tuesday in October.

THE OFFICERS FOR THE ENSUING YEAR

were then elected, as follows:

President.—Dr. Henry P. Walcott, of Cambridge, Mass.

Vice-Presidents.—Dr. C. W. Covernton, of Canada; Dr. G. B. Thornton, of Memphis, Tenn.

Treasurer.—Dr. J. Berrien Lindsley, of Nashville, Tenn.

Executive Committee.—Dr. Pinckney Thompson, of Kentucky; Dr. Henry B. Baker, of Lansing, Mich.; Dr. Joseph Holt, of New Orleans; Dr. Charles Smart, U. S. A.; Dr. C. N. Hewitt, of Minnesota; and Dr. H. A. Johnson, of Chicago.

Secretary.—Dr. Irving Watson.

Dr. C. A. Lindsley, of Yale College, read a paper entitled

AN EPIDEMIC OF TYPHOID FEVER.

He stated that there were no new points involved, and that he merely wished to add to the literature on the subject cumulative evidence of the propagation of typhoid fever by means of water and sewer connections.

Dr. Thomas F. Wood, Secretary of the State Board of Health of North Carolina, presented a paper entitled

OBSERVATIONS ON THE CAPE FEAR RIVER WATER AS A SOURCE OF WATER SUPPLY.

He narrated the experience of a company formed to make artificial ice by the ammonia process. They used the water of the Cape Fear River, which was boiled and the steam condensed, and the condensed water used for making the ice. It was found that the ice had a decidedly greenish color, and an odor of tar and creasote, and that a core formed in the centres of the frozen cakes which was highly impregnated with these wood products, and this, in spite of every care being used to keep the water in the boiler as fresh as possible. An examination into the cause of this showed that the river water was impregnated, to a certain degree, with substances capable of yielding these products when they underwent a process of destructive distillation in the boiler. The trouble disappeared only when well water was used and the river water wholly abandoned.

Drs. Thomas F. Wood, of North Carolina; S. W. Abbott, of Massachusetts; and Smith Townshend, of Washington, D. C., were appointed a committee on the subject of

VACCINATION AND VACCINE VIRUS,

to report next year.

MISCELLANEOUS BUSINESS.

The EXECUTIVE COMMITTEE recommended that the Conference of State Boards of Health be invited to become a Section of the Association, and it was so ordered.

The constitution was amended so that the Executive Committee shall consist of six active members, three to be elected each year, by ballot, and to be ineligible for election to that committee again.

THE ADVISORY COUNCIL recommended that Congress be urged to appropriate the necessary funds to equip the War and Navy Departments with materials for researches by the medical corps into the causes of infectious diseases. It also endorsed Dr. Holt's resolutions for a Congressional Commission to investigate and report upon yellow fever in its breeding places.

A committee of three was appointed, with Dr. J. S. Billings as chairman, to prepare a form for weekly, monthly, and yearly mortality reports.

The subject of the disinfection of sewers was referred to the Committee on Disinfectants, which was continued until next year.

DR. J. HOWARD GAYLORD, of Baltimore, Chairman of the Special Committee on

DISINFECTION OF RAGS,

reported that it is an admitted fact that the importation of rags is a prolific cause of the spread of infectious diseases, and that ports of entry are the gateways for their introduction. Foreign disinfection was not to be relied upon, and the Committee proposed that a resolution should be passed by the Association that all health authorities having jurisdiction over matters connected with maritime systems of disinfection, should thoroughly destroy all germs before the rags are permitted to be distributed for manufacturing purposes.

The report was, after a prolonged discussion, recommitted for further investigation by the Committee during the coming year, and Dr. J. H. Raymond, of Brooklyn, and Dr. Joseph Holt, of New Orleans, were added to the Committee.

REPRESENTATIVE SWINBURNE, of New York, made a short address, in which he commended the work of the Association.

CAPT. HENRY LOMB also thanked the Association for the good will it had shown him, and for the honor of election as a life member.

THE PRESIDENT announced that Mr. Lomb had decided to offer four additional prizes of $100, $75, $50, and $25, for the best plans for houses to cost $600, $1000, and $1500.

DR. REEVES, the retiring President, in his closing speech, alluded to the good work which had been accomplished by the Association during its existence of thirteen years, and the Association then adjourned.

NEWS ITEMS.

AN ITALIAN TRANSLATION OF PEPPER'S SYSTEM OF MEDICINE is announced as in course of preparation.

PASTEUR'S INOCULATIONS.—On the 13th of December last, M. Pasteur inoculated in the presence of M. Gomot, the Minister of Agriculture, forty persons who had been bitten by dogs, with the attenuated virus of rabies.

SCHOOLS OF MEDICAL PRACTICE IN THE GOVERNMENTAL SERVICES.—Mr. Lowry, on Dec. 21, 1885, introduced in the House of Representatives the following joint resolution, relative to schools of medical practice in the United States, and to the graduates thereof:

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be a misdemeanor, punishable by a fine of five hundred dollars and dismissal from office, for any officer of the United States Government, civil, military, or naval, to make discrimination in favor of or against any school of medical practice, or its legal diplomas, or its duly and legally graduated members, in the examination and appointment of candidates for medical service in any of the Departments of the Government.

SEC. 2. That all such examinations shall be open to the attendance and witness of all physicians, citizens of the United States; and that duly certified copies of the complete records of all the details of said examinations shall be placed on file in the office of the Librarian of Congress, subject to the inspection and use of members of Congress.

THE PROSPECTS OF THE DENTAL SECTION OF THE INTERNATIONAL MEDICAL CONGRESS.—*The Dental Cosmos*, for January, states that, "as an unbiassed recorder of facts, the *Dental Cosmos* is forced to the statement that, 'under existing circumstances,' the majority of the profession apparently deem it inexpedient to continue the effort for perfecting the organization of a Dental Section of the International Medical Congress. Such was the purport of a resolution adopted without a dissenting voice at an informal conference of some twenty leading dental practitioners at Buffalo, in November. At the recent anniversary of the First District Dental Society of New York, the opportunity afforded at an entertainment given to the guests from other cities was utilized by taking an informal vote on the question of 'expediency.' Out of about forty present, there were but two votes in favor of coöperation."

THE MEDICAL SOCIETY OF THE STATE OF NEW YORK will hold its Eightieth Annual Meeting in the City Hall, Albany, on Tuesday, Wednesday, and Thursday, February 2, 3, and 4, 1886. The following papers have been promised:

Lessons in the Management of Clubfoot, by V. P. Gibney, M.D., of New York.

Methods of Diagnosis, by Lawson Tait, F.R.C.S., of Birmingham, Eng.

Vesical Calculi in Female Children, with cases, by N. A. Powell, M.D., of Edgar, Ont.

Rheumatic Affections of the Joints, by A. Hadden, M.D., of New York.

Notes of Autopsy disclosing Absence of the Liver, by Benj. C. Senton, M.D., of Whitehall.

Peritonitis of Infants and Children, by A. Jacobi, M.D., of New York.

The Free Dispensary System, by Joseph W. Howe, M.D., of New York.

Infant Feeding, by E. F. Brush, M.D., of Mount Vernon.

Consultations, by Lawrence Johnson, M.D., of New York.

Medical Testimony and the Hypothetical Question, by William C. Wey, M.D., of Elmira.

The Recording of Cases (1); The Effect of the Electric Light on the Eye (2), by Lucien Howe, M.D., of Buffalo.

The Establishment of a State Board of Medical Examiners, by P. R. Furbeck, M.D., of Gloversville.

Burns Considered as Wounds, and Treated According to Scientific, Antiseptic Methods, by Robert J. Morris, M.D., of New York.

Antiseptics in Midwifery, by Walter B. Chase, M.D., of Brooklyn.

The Results of the Operation for Convergent Squint, by D. B. St. John Roosa, M.D., of New York.

Spontaneous Expulsion of a large Calculus in the case of a Female aged Sixty-eight Years, by Harvey Jewett, M.D., of Canandaigua.

Leprosy in Japan, by D. B. Simmons, M.D., of Poughkeepsie.

The Clinical Diagnosis of Cancer sufficient for Practical Purposes, by Daniel Lewis, M.D., of New York.

Some Observations on the Treatment of Uterine Displacements in General Practice, by L. E. Felton, M.D., of Potsdam.

Obstetric Palpation, by W. W. Potter, M.D., of Buffalo.

Ovarian Tumor; Advantages of early Ovariotomy; Disadvantages of Delay, by T. H. Squire, M.D., of Elmira.

Megrim with Intermittent Ptosis, by J. C. Shaw, M.D., of Brooklyn.

Acute Nephritis, especially as following Diphtheria, by A. R. Simmons, M.D., of Utica.

Treatment of Aural Polypi by the Injection of Carbolic Acid, by Herman Bendell, M.D., of Albany.

Tinea Tonsurans; or Ringworm of the Scalp, by F. C. Curtis, M.D., of Albany.

A Clinical Note on Bright's Disease, and Diabetes Mellitus, by Wesley M. Carpenter, M.D., of New York.

Report of a Case of Empyema, by B. F. Sherman, M.D., of Ogdensburg.

On the Limitation of the Contagious Period of Syphilis, in Relation to Marriage, etc., by Fessenden N. Otis, M.D., of New York.

General Arterio-capillary Fibrosis; its Relation to Cardiac and Renal Disease, by Alfred L. Loomis, M.D., of New York.

Prevention of Hemiplegia, by W. H. Thomson, M.D., of New York.

A Case of Tumor of the Maxillary Antrum and Orbit, by T. R. Pooley, M.D., of New York.

The Early Management of Cases of Mental Depression, by Willis E. Ford, M.D., of Utica.

A Comparison of some of the Modern Methods of Treating Ununited Fractures, by Geo. R. Fowler, M.D., of Brooklyn.

Ulcerative Endocarditis, by H. R. Hopkins, M.D., of Buffalo.

Cholera, by J. A. S. Grant, Bey, M.D., of Cairo, Egypt.

Fatty Tumors of the Knee-joint, by R. F. Weir, M.D., of New York.

Treatment of Tertiary Syphilis of the Nose, Mouth, and Throat; Records of Cases presented and fully Illustrated, by D. H. Goodwillie, M.D., of New York.

Ozæna, by John A. Roe, M.D., of Rochester.

Hygiene of the Ear, based upon the Records of more than 2800 Cases, by C. R. Agnew, M.D., of New York.

History of a Case of Abscess of the Kidney, by C. L. Stiles, M.D., of Owego.

Remarks on Pelvic Inflammations in Females, and their Treatment, by A. M. Jacobus, M.D., of New York.

Diseases of the Fallopian Tubes; with Reports of Cases, and Characteristic Specimens, by W. Gill Wylie, M.D., of New York.

Report of a Case of Swallowing a Plate with four Artificial Teeth, the same being passed, per rectum, on the sixth day; with remarks, by L. M. Bates, M.D., of Canaan Four Corners.

Excision of the Knee-joint, with Cases, by A. M. Phelps, M.D., of Chateaugay.

Hemorrhage after Removal of the Cervix Uteri for Epithelioma, with the Galvanocautery Wire, by James P. Boyd, M.D., of Albany.

The Benefits arising from Laws regulating the Practice of Pharmacy, by A. B. Huested, M.D., of Albany.

Migraine, by Floyd S. Crego, M.D., of Buffalo.

Cremation, by Charles Cary, M.D., of Buffalo.

Tubercular Ulceration of the Pharynx, by F. W. Hinkel, M.D., of Buffalo.

Medical Honors.—The honor of knighthood has been conferred on Dr. Paget, of Cambridge, and Dr. William Roberts, of Manchester.

Official List of Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service, for the Three Weeks ending January 2, 1886.

Purviance, George, *Surgeon*.—To proceed to Chicago, Illinois, as Inspector, December 23, 1885.

Guitéras, John, *Passed Assistant Surgeon*.—To proceed to Saint Louis, Missouri, for duty, December 23, 1885. Granted leave of absence for seven days, December 26, 1885.

Urquhart, F. M., *Passed Assistant Surgeon*.—To proceed to Charleston, South Carolina, for temporary duty, December 23, 1885.

Bratton, W. D., *Assistant Surgeon*.—Granted leave of absence for twenty-two days, December 22, 1885.

McIntosh, W. P., *Assistant Surgeon*.—Granted leave of absence for fourteen days, December 22, 1885.

Guitéras, John, *Passed Assistant Surgeon*.—Upon expiration of leave of absence to reassume charge of the Service at Charleston, South Carolina, December 29, 1885.

Fattic, J. B., *Assistant Surgeon*.—Appointed an assistant surgeon December 28, 1885; assigned to duty at Baltimore, Maryland, December 29, 1885.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department of the U. S. Army, from December 29, 1885, to January 2, 1886.

Maddox, Thomas J. C., *First Lieutenant and Assistant Surgeon*.—Killed December 19, 1885, in affair with Apache Indians near the White House, New Mexico.

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

PAINFUL MICTURITION IN INFANTS, AND NOCTURNAL INCONTINENCE OF URINE; CAUSES AND TREATMENT.

A Clinical Lecture, delivered at the Philadelphia Hospital.

BY JOHN M. KEATING, M.D.,

VISITING OBSTETRICIAN TO, AND LECTURER ON THE DISEASES OF WOMEN, ETC., AT THE PHILADELPHIA HOSPITAL.

(Reported by Harrison Gill, Student of Medicine.)

GENTLEMEN: I bring before you this morning this little boy, whose age is about two years. My attention was called to him the other evening during my visit to the ward. The resident physician, Dr. Peck, informed me that the child was restless, moaning or crying constantly; that it had been in this condition for the last twenty-four hours, and nothing seemed to give it relief. The child did not have loud, screaming attacks, as if it were in acute pain, but at the same time there was something annoying it which gave rise to the condition noticed. Now, let me tell you that the temperature was normal, that the bowels were regular; the lungs were normal, with the exception of very slight bronchitis, which is always more or less present at this time of year.

These symptoms will often present themselves to you, and it becomes a matter of great importance for you to make a diagnosis, in order to be effectual in your treatment. One of the first things that would strike you would be possibly earache; this is of very common occurrence in children, especially during these damp fall months or in the early spring. Some children are very liable to catch cold, to have sore throats, acute tonsillitis and pharyngitis, and when your attention is called to them you will notice redness of the mucous membrane, possibly upon the tonsils, the follicles of which become very much enlarged, with grayish patches in the valleys or depressions of the glands; there are usually present fever, malaise, loss of appetite. Now, this must not be confounded with diphtheria, which is a disease having symptoms very much more prominent as regards their constitutional character, and with the appearance of membrane—that is to say, grayish patches adherent to the mucous membrane of the half arches and soft palate, and very difficult to detach.

In these cases of acute follicular pharyngitis or tonsillitis, the inflammation is apt to extend through the Eustachian tubes and involve the structure of the inner ear, possibly attacking only one, possibly both, and giving rise to a series of symptoms which are most distressing to witness. The child will have a history of ear trouble possibly, or this may be overlooked, but there will be a constant fretfulness, sleeplessness, loss of appetite; the child will continually cry, probably have paroxysms of great pain, in which it will endeavor to bury its head in the pillow, or will throw itself from its nurse's arms in fear of being touched, or it will place its hand to the place affected, and in this way determine the seat of the lesion; if it is very young, you will have to make a diagnosis by exclusion, and possibly after applying warmth to both ears, giving the child an opiate to relieve its pain, a hot foot-bath as a derivative, you will be rewarded by the child's having a comfortable night's rest, and exhibiting the signs of the discharge from the ear affected upon the flannel or poultice which you placed over it the night before. The child before us gives no indication of aural trouble.

Having eliminated almost every source of trouble, we turn to the urinary organs as the solution of the problem. Retention of urine is very often overlooked in children, and sometimes gives distressing pain. The mother will tell you that the child has passed its water, having possibly left it to the nurse to attend to, and the nurse, in her turn, left it to the mother.

In this case, fearing some such cause, I passed a catheter, but found the bladder empty; but when doing so I noticed that the meatus urinarius was extremely inflamed, the mucous membrane was red and bulging and moist, and the prepuce very long, extremely contracted, and impossible to retract over the gland—in fact, it was adherent firmly to a great extent. The child seemed to suffer extremely as I made this examination, and I felt sure that we had detected the cause of the difficulty. It was placed in a warm hip-bath, was given alkalies freely, large doses of bromide with some chloral, and afterward had a comfortable night.

The cause of the pain seems to be from the fact that children frequently have highly acid urine, due to the presence of uric acid; this, with possibly the small crystals of uric acid, being retained at the mouth of the urethra by the elongated prepuce, excoriates or irritates the mucous membrane. In fact, we have a urethritis established; we have also an inflammation of the mucous membrane of the prepuce itself. This irritation causes erection to take place in the glans through reflex influence, and the child is kept in constant pain until relief is afforded.

Now let me say a few words to you as regards the necessity of the operation of circumcision. My experience, which is quite a large one, enables me to say that if every child, shortly after birth, is taken in hand by a nurse or mother, and the foreskin pressed back, in a very short time it makes no difference how narrow the opening in the foreskin may be, all adhesions will eventually be broken up, and the mucous membrane be loose enough to allow full erection to take place; but, if this is neglected, as the child grows older it becomes very much more painful, and a very much more difficult operation. I believe it is nearly always possible to break up adhesions and to retract the foreskin, but at the same time I think that a child, at the age at which this one is, is placed in a far better condition in after-life by having the redundant foreskin removed and the ad-

lesions entirely broken up. The operation takes but a few minutes. I have never seen it followed by any bad effects, and ether will render it painless.

Now you will ask me, possibly, whether the many nervous troubles of which we read are ever the direct result of preputial adhesions or elongated foreskin. I think I can answer this in a very few words. I have never seen any lesions produced in the nervous system that I could directly trace to this condition; but I have seen phenomena the result of reflex irritation caused by phimosis that simulated serious disorders of the nutritive system, possibly acting through nervous influences. I have seen reflex symptoms of disorders resembling the hysterical phenomena of adults produced time and again, and let me tell you that hysteria is a common thing, even in infants; but the most frequent attendant upon this condition is a disturbance in general nutrition. The child will fail to grow stout and strong, despite all efforts on the part of the mother; nourishment seems to have but little effect upon it; it will fret, be peevish, flabby, and emaciated; the mother will worry, and tell you she thinks her child has worms, or that the milk does not agree with it. If you have satisfied yourself that it gets good food, you will ask whether it passes its water very frequently, and the answer will probably be, "Yes, doctor, baby is always wet." Here, then, you have the source of the trouble, and if you find an elongated prepuce, with a narrow opening excoriated at the end, reddened mucous membrane puckered up, I would advise you not to waste time, but to circumcise. The child will then grow strong and hearty; its flesh will become firm; it will sleep well; the restlessness will disappear; and you will be astonished at the change in its condition.

I shall operate on this child before you. You will notice that I draw the foreskin forward, and that this pair of self-retaining forceps grasps that portion which is in advance of the glans. I allow it to slant toward the dorsum so as not to cut the frænum. I will now take a sharp knife and trim off the projecting tissue, allowing the forceps to remain a few moments so as to permit the blood to coagulate thoroughly. When I take off the forceps and allow the skin to retract you will notice that I have made an annular excision of the skin about on a line with the corona. I will now, with a pair of sharp scissors, split up the mucous membrane on the dorsum and thoroughly retract the prepuce, breaking up adhesions with my thumb, and you will see that I have great difficulty in doing so. Having thoroughly broken up adhesions, I will now unite the edges of the denuded parts by means of a fine needle, using Snowdon's iron-dyed silk and making a continuous suture around the parts, so as thoroughly to approximate the edges. This takes, as you see, but a few minutes; the foreskin should remain retracted, and I very much prefer dressing it with dry dressing, using the borated absorbent cotton on the parts. In the hospital we usually dress these cases with carbolated oil, owing to the danger of suppuration.

While upon this I may speak about these cases of micturition at night. Children will get in the habit of wetting their beds for various reasons; first of all, it may be entirely the fault of the mother or nurse; the child will go to bed early and possibly no attention will be paid to it, and the bladder will become full either from sudden change in the temperature or an unusual amount of liquid food, or possibly some diuretic substance which it has taken during the day. The child will be in sound sleep and will pass its water; now this usually will be followed by a scolding, and the little sufferer, fearing a repetition of the offence and its consequences, will have it on its mind the next night on retiring, and, owing to the mental effect through reflex control, will contract the bladder at the same time.

Children are creatures of habit to a very marked extent; as we all know, the natural tendency in nature to perform its operations at certain definite periods soon makes it impossible for the child to control itself; the more it is scolded the more its mind will, during sleep, dwell upon this condition. Such cases should not be treated in a harsh manner, but by endeavoring, if possible, to change the hour of this function. If it takes place at nine or ten o'clock, the mother should invariably at that time lift the little one out of bed and put it on its chamber.

Unconscious micturition may again be caused by some local irritation. Constipation is a frequent cause, also worms, especially seat worms, preputial adhesions, eczema, etc.; each of these, of course, has its individual remedy. Then again, sometimes, indigestion will produce it; cerebral excitement, dreams, chilling of the body in the early morning hours with a resultant checking of the perspiration, also irritation of the bladder from over-acid urine or deposits of phosphates or oxalates; these should have their appropriate treatment. When nervous irritability or loss of control or irritation of the neck of the bladder is the cause, the child should be placed upon doses of belladonna, or bromides and chloral at night, or possibly give the belladonna in the mixture at bedtime, or belladonna in form of tincture, one or two drops twice or three times daily or oftener for a child two years old as indicated; frequently a suppository of quinine with belladonna is very useful at night upon retiring. The child, under such circumstances, should be placed upon a tonic during the daytime. The tonic that I usually advise in such cases is: wine of pepsin with Fowler's solution, or wine of iron with tincture of nux vomica, the former given after meals or a little before. The child should be kept out of doors, have nourishing food, and be well sponged twice a day with cold water and thoroughly rubbed in order to invigorate the system, which is evidently lowered in its tone.

ORIGINAL ARTICLES.

TWO CASES OF OPERATION FOR PYLORIC STENOSIS.[1]

By CHARLES McBURNEY, M.D.,
of New York.

It is not my intention to review or compare the different operations which have been devised for the relief of pyloric stenosis. I desire merely to present the results of my experience with the most recent of these operations. I refer to that devised by Professor Loreta, of Bologna, namely, digital divulsion of the pylorus. This operation is intended to take the place of excision of the pylorus, and is, of course,

[1] Read before the New York Surgical Society, Dec. 22, 1885.

applicable only to cases where the stenosis is due to cicatrization or chronic thickening of a non-malignant character. That such cases exist has been abundantly proven, and the records of pylorectomy, duodenostomy, and gastro-enterostomy all contain cases of this comparatively simple nature.

The operation of digital divulsion was first performed by Loreta on September 14, 1882, and with success. The patient suffered from dilatation of the stomach due to stenosis of the pylorus. The stenosis was believed to be due to the cicatrization of an old ulcer. (I derive my information on many points referred to in this paper from a translation of Loreta's article by Dr. Ancona, which is to be found in the *Arch. Gén. de Méd.* for September of this year, and from an interesting article on the same topic which may be found in the *British Medical Journal* for February 21, of this year. The latter is by Mr. Holmes. And in the *American Journal of the Medical Sciences* for April, 1885, is an article by Professor Randolph Winslow, in which the whole subject of pyloric stenosis is very carefully dealt with.)

The method of operating may be briefly described thus: Incision of the abdominal wall to the extent of about five inches on the right side, close to and parallel with the free border of the ribs. Opening of the stomach by a wound three inches long very near the pylorus, and about midway between the two curvatures. The introduction of one index finger through the pylorus, then the introduction of the other index finger, and finally the gradual forcible dilatation of the orifice to the extent of about three inches. Then immediate closure of the stomach and abdominal wounds. The probable immunity from hemorrhage, the short duration of the operation, and the excellent results which are reported as having followed the practice, would certainly seem strongly to recommend its adoption in suitable cases. I find it impossible to present anything like an accurate statement of the results of all the cases thus far operated upon by this method.

Winslow, in the article already referred to, summarizes the number of operations up to April of this year as six. Four of these were done by Loreta and two others by different Italian surgeons. Of these six cases, two died, but no mention is made of autopsy. The others were all successful. In Ancona's article the statement is made that Loreta claims to have performed the operation twenty-two times and *always* with success. Also that five other Italian surgeons have done the same operation successfully. It is difficult to reconcile these different statements, and I am not able to verify them, as many of the cases have not been published. It is doubtless true, however, that so far the operation of digital dilatation of the pylorus has been very successful, and the mortality low as compared with any other operation having the same object in view.

CASE I.—Marie B. Propes, aged thirty-nine, married, Virginian, was first seen by me in the early part of the present year. She had then been for some months under the care of Dr. F. P. Kinnicutt, at St. Luke's Hospital, who had carefully noted her symptoms and diagnosticated dilatation of the stomach due to stenosis of the pyloric orifice.

The patient gave the following history: From twenty years of age up to a year ago she suffered from attacks of what she called "bilious colic." These attacks occurred every few weeks, and were characterized by intense pain in the epigastrium extending to the back and by violent vomiting without blood. About one year ago she began to have frequent attacks of vomiting, these occurring sometimes twice a day, sometimes only once in two or three days. Nearly all food was vomited, and intense burning pain was felt in the epigastrium with continual thirst. For some five months the patient had been confined to bed, and had become very weak and emaciated. For seven or eight years before this period her weight had averaged two hundred pounds. Half of this weight had been lost within one year. Flatulence, eructations of gas, and obstinate constipation had been prominent symptoms for many months. No pulmonary or cardiac symptoms existed.

On admission to the hospital on February 4, 1885, the patient weighed less than one hundred pounds. The localized distention of the abdomen extended from just below the ensiform cartilage to a point three inches below the umbilicus, and to a point three inches to the left of the umbilicus, and two inches to the right. Over the whole of this region was marked tympanitic reasonance on percussion. After emptying the stomach with a rubber tube, a small movable tumor, about the size of an almond, could be felt on deep pressure, one inch to the right of the median line, and two and one-fourth inches above the umbilicus. The patient was put upon a diet of peptonized milk and beef peptonoids, and the stomach was washed out daily. On each occasion the washing was kept up until the fluid returned was perfectly clear. In spite of this lavage, vomiting occurred almost daily more than a month, and when a little rice had been added to the diet, particles of rice could be found in the washing five days after such a meal. Nevertheless, under this treatment the vomiting gradually subsided and the patient's weight steadily increased. The experiment of discontinuing the washing was then tried, but pain and vomiting almost immediately returned.

In this case, then, there was no history of ulceration. The enormous dilatation of the stomach was easily demonstrated by filling the organ with water, and then emptying it. The existence of obstruction at the pyloric orifice was also shown by the return of undigested food many days after it had been swallowed, and finally a distinct tumor could be felt at the exit of the pylorus. This tumor was believed not to be malignant from the facts that it did not increase in size during months of observation, that there was no true cachexia, and that the patient increased in weight many pounds while under treatment. No doubt she could have been kept alive with careful treatment, including daily washings of the stomach, for an indefinite period. She was anxious, however, to leave the hospital; was too nervous to manipulate the stomach tube herself; and desired some radical operation.

I desire to state here that the whole of the medical treatment of this patient had been conducted by Dr. Kinnicutt, under whose care the patient was, and

who, after consultation, requested me to operate upon the case.

Believing the case to be similar to those reported by Professor Loreta, and in which he obtained such signal success by forcible dilatation of the pyloric orifice, I determined to attempt the same procedure.

On July 3, the patient was put upon a diet of peptonized milk only, to prepare the stomach for operation. On July 6, the day of the operation, the stomach was thoroughly washed out with borax solution at 10 A. M., and again at noon. At 2.15 P. M., irrigation was practised with a solution of salicylic acid 1 part, boric acid 4 parts, and water 1500 parts. Before the second washing the fluid was found to be distinctly acid, and to contain some white material in suspension, which, after settling, left the fluid comparatively clear. The sediment consisted of oil globules, casein, and oval and polygonal epithelial cells. Ether was given at 2.30 P. M. on July 6, 1885, and the operation was conducted as follows: with the immediate assistance of my colleague Dr. Abbe, and in the presence of a number of surgeons and physicians. The surface of the abdomen was thoroughly cleansed. I made an incision about five inches long, from a point one inch below and one and a half inches to the left of the ensiform cartilage, downward to the right, parallel with the border of the ribs. All the tissues down to the peritoneum were divided as rapidly as possible, and all vessels tied. The peritoneum was then incised throughout the whole length of the wound, and the pyloric end of the stomach readily found and drawn out through the wound. No adhesions existed between the pylorus and the liver or pancreas. The small tumor already described was felt at once, and was evidently the thickened wall of the pyloric orifice. The anterior wall of the stomach, nearer the lesser curvature and just to the left of the pylorus, was clasped by two thumb forceps, the blades of which were covered with flannel, and incised to the extent of three inches. The pyloric orifice was easily found, but it was so contracted that I could not, even when using as much force as I dared, pass the first phalanx of my finger through it. It felt very much like the firm os of a normal uterus. For this emergency I had ready a rectal dilator, which seemed to be well suited for a preliminary stretching, having perfectly smooth, rounded blades. This was easily passed through the pylorus, but so great was the tenacity of the hypertrophied wall that it was only after repeated stretchings with this instrument that I was able to get one finger through I then passed in the index finger of the other hand, and, by forcibly separating the two for some time, stretched the opening to a long diameter of about three inches. It was then perfectly easy, on looking through the wound in the stomach, to inspect the dilated pylorus. A short tear in the mucous membrane was recognized, and a very little dark blood noticed, but no bleeding vessel. The mucous membrane of the stomach was then sewed with a fine silk, continuous suture, a straight, round needle being used. No bleeding worthy of notice had occurred in making the incision in the stomach wall. The serous coat was united by twelve interrupted catgut sutures introduced after Lembert's method. The peritoneum of the abdominal wound was then sewed with a continuous catgut suture, and deep and superficial catgut sutures were used to close the incision of muscles and skin. Three silver wire supporting sutures, with lead clamps, were used to give additional strength. An antiseptic dressing was applied over all. The operation, from the first incision to the complete closure of the external wound, lasted one hour and eighteen minutes.

The patient bore the operation quite well, and at 6 P. M. her pulse was fairly good. Still the evidences of shock were very noticeable, and from this time on both pulse and respiration rapidly failed. She died six hours after the close of the operation, although every effort was made by the members of the house staff and myself to sustain life.

An autopsy was held in my presence the next day. Excepting the stomach, the various organs were found to be in a healthy condition; the wound in the stomach was found tightly closed, so that on distending the stomach with water not a drop escaped. On opening the stomach it was found to contain some ten or twelve ounces of fluid blood. The mucous membrane of the stomach itself was deeply stained with blood; but no lesion other than the operation wound was to be discovered. The pyloric orifice was widely dilated so as easily to admit three fingers. In the mucous membrane of the pylorus on the posterior surface was a recent longitudinal laceration, about an inch long. This laceration extended through the mucous and submucous coats; otherwise the mucous membrane was normal, and no trace of old or recent ulceration could be found. Entirely surrounding the pylorus was a thickening of firm fibrous or fibrous and muscular tissue, which had doubtless caused the stenosis, and which had formed the small tumor previously described. The duodenum was found to contain a large quantity of blood, and many ounces of blood were found in the small intestine. The peritoneum, except where cut in the course of the operation, was normal. No adhesions existed at any point.

The behavior of the patient after the operation, together with the result of the autopsy, made it very clear that the patient had died of hemorrhage, the blood coming from a vessel involved in the tear of mucous membrane found in the pylorus.

Case II.—Susan Joyce, aged fifty-two, widow, Irish. The patient was admitted for the first time to St. Luke's Hospital on December 18, 1883. She then gave the following history: from fourteen to nineteen years of age she had occasional hæmatemesis. At the age of nineteen, after a severe exertion, she vomited a large quantity of blood during two days. Twenty years ago the patient vomited black grumous material nearly every day for a year, and always had severe pain in the epigastrium after eating. In the early part of 1881 she vomited a large quantity of blood. She was admitted to the hospital much emaciated, complaining of severe abdominal pain, which was much increased after eating, and which extended to the back and right shoulder. The stomach was found to extend to a point four inches below the umbilicus. After a short stay in the hospital the patient was dis-

charged, to be readmitted on April 9, 1885. Since leaving the hospital she states that she has been living upon milk and stimulants, with a little fish and eggs. She had continued to vomit daily. Usually the vomit had been of a dark green color, sometimes mixed with a little bright blood. Constipation had been extreme, no stool occurring without a cathartic. She had been confined to bed for the last six weeks, and had lost flesh and strength rapidly. The patient was found to be emaciated, anæmic, complaining much of thirst and constipation. Tongue coated, and urine scanty. Slight dulness was found at the right apex, and the patient had a cough and occasional fever and night sweats. The stomach was found to be much dilated, occupying the left umbilical, lumbar, and hypogastric regions, extending two inches below the level of the anterior superior iliac spines. Percussion over this area was resonant, with marked succussion sound. A distinct tumor, about one inch long and one-half inch broad, was felt in the epigastric region two and a half inches above the umbilicus in the median line. This tumor was not movable, and was firm and resistant. With the exception of the apex of the right lung the other organs were normal. The patient was put upon a diet of peptonized milk and beef peptonoids. Her weight at this time was eighty-seven pounds, certainly from thirty to forty pounds less than her normal weight. On April 8 daily lavage of the stomach was begun, the solution used being one of borax, twenty grains to the pint. Under this treatment the patient's weight increased to ninety-nine pounds at the end of June. At this date the capacity of the stomach was 115 ounces.

This patient also had been under the care of Dr. F. P. Kinnicutt, in the medical wards at St. Luke's Hospital, for nearly three months. During that time I examined her, with Dr. Kinnicutt, several times, and we agreed that, doubtless, the original cause of her troubles was ulcer of the stomach, probably situated at or near the pyloric orifice, as indicated by the presence of the small tumors found at that point. It seemed probable, too, that this ulcer had healed, or had become nearly cicatrized, from the absence of hæmatemesis during a long period. The tumor was not believed to be malignant, as it did not increase in size, and as the patient did not present any cachexia, and increased markedly in weight under treatment by lavage. Her case was not a promising one, but there was no reason to believe that her life could be prolonged without surgical assistance, unless she remained a permanent resident of the hospital. I determined, therefore, to make an exploratory operation, and, if possible, relieve the stenosis.

On June 20th, the patient's diet was limited to pancreatized milk only, to prepare the stomach for operation. On July 6th, the day of operation, the stomach was washed out at 10 A. M., and again at 12.30 P. M. The fluid removed before the second washing was decidedly acid, containing much whitish material in suspension, which did not completely separate. Under the microscope the sediment was found to consist of oil globules, coagulated casein, granular nucleated epithelium, and some mucus.

At 3 30 P. M. the stomach was again washed with the borosalicylic acid solution. The patient was etherized at 4.30 P. M. I had the kind assistance of my colleague, Dr. Robert Abbe, and, during the operation, all possible antiseptic precautions were used. The abdominal wall was incised in precisely the same manner as in the case first reported. All bleeding was controlled, and then the peritoneum was opened as before. The stomach was easily seized, but I found considerable difficulty in locating the pylorus. It was at last made out to be directed upward and somewhat to the left, its ordinary position being occupied by the dilated pyloric end. The stomach wall was then incised to the extent of two and a half inches, the incision being near the lesser curvature, and close to the apparently thickened pylorus. On opening the stomach an old and apparently healed ulcer was felt and seen directly opposite the incision. This ulcer was about one inch in diameter, and its largely thickened edge formed the tumor which had been felt before the operation. The base of this ulcer was firmly adherent to the pancreas behind, and the contraction of cicatrization had given the stomach an hour-glass form. Even then it was difficult to find the pyloric orifice. After a search of some minutes I found it at the upper border of the ulcer, close to the latter, but not involved in it, and directed upward. The posterior edge of the pylorus had been so firmly drawn by the cicatrization of the ulcer that although it was easy, on lifting the anterior edge, to pass the finger through it, yet when the anterior edge was not so lifted the orifice was completely closed. Had the patient's general condition warranted it, the operation of gastro-enterostomy would, I think, have been the better one; but, on account of her age and general feebleness, I did not think it wise to prolong the operation. I thought that by a thorough stretching of the pylorus I could counteract the stenosis produced by the cicatrized ulcer. When the two index fingers were introduced, the pylorus yielded very readily without tearing, so as to leave the exit from the stomach very free. The two fingers were separated during the stretching about three inches. I then at once sewed the mucous membrane of the stomach with a continuous fine silk suture, using a fine, round needle. The serous surfaces were united with a continuous catgut suture after Lembert's method. The abdominal wound was treated as in the first case, and an antiseptic dressing applied.

The time occupied in this operation, from the commencement of the first incision to its complete closure, was one hour and three minutes. The patient rallied very well from the effects of the operation. She slept comfortably nearly all night, receiving small quantities of brandy and ice, and two small hypodermic injections of morphine. But at the end of twenty-four hours her kidneys had excreted only twelve ounces of urine, which was found to contain two per cent. of albumen. Before the operation the urine had been normal, though scanty. From this time on the kidneys ceased to act, and the patient became gradually weaker, and respiration and heart action failed rapidly. She died thirty and one-half hours after the operation, the cause of death being apparently suppression of urine.

At the post mortem examination, which was made the next day, the following lesions were discovered: The left kidney was normal in size; the capsule was adherent at different points; a few small cysts were found in the cortex; the cortex was thin, and the whole organ congested and fatty; the right kidney was in a similar condition, and an infarction one-fourth of an inch in diameter existed in it; the upper part of the right lung displayed the lesions of advanced chronic phthisis; the lower part of both lungs were congested and œdematous; recent peritoneal adhesions existed in the immediate neighborhood of the abdominal wound; no escape of fluid from the stomach had occurred, and the wound in the stomach wall was tightly closed; the mucous membrane of the stomach bore plain evidences of chronic gastritis; posteriorly was a large, old ulcer, about one inch in diameter, mostly or entirely cicatrized; the base of this ulcer was firmly adherent to the pancreas, and its edge was much thickened; the pyloric orifice lay immediately next to the right and upper edge of the ulcer; the orifice was widely dilated, and no rupture of mucous membrane existed; the stretching seemed to have accomplished the object without injury to any adjacent part.

It is not always agreeable to listen to the details of unsuccessful cases; but, in relation to new procedures, unsuccessful cases possess a certain value, and I have therefore made these two the subject of my paper. The particular points to which I wish to call attention are the cause of death in the first case, and the manner in which stenosis was produced in the second.

ON METHODS OF TESTING THE DIASTATIC ACTIVITY OF MALT EXTRACTS.

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In a recent number of The Medical News (September 5, 1885), Prof. Wm. L. Dudley, of Cincinnati, has described a method of testing the relative diastatic activity of malt extracts, and has given a table of comparative results obtained by him in thus testing samples of several malt extracts of the most prominent manufacture found in the market.

Inasmuch as extract of malt is at present being very largely prescribed by physicians for its diastatic effect, the question as to the relative diastatic activity of different samples of malt extract, and the best means to be adopted in deciding this question, are by no means unimportant matters to the profession. Now, the results obtained by Prof. Dudley, as given in his table on page 259 of The News, are so utterly at variance with those obtained by myself and by others in a very large number of experiments, conducted at various times for more than a year past, and his method of testing appears to me to be so very untrustworthy, that, in view of the importance of the subject, I do not think his paper should be allowed to pass unquestioned.

In the first place, as to the method of testing adopted. The method employed by Prof. Dudley consists, essentially, in mixing a given quantity of each extract with equal quantities of starch paste; maintaining the mixture at a temperature of 65° C., and from time to time removing a drop of each mixture and testing it "with iodine solution on a porcelain plate or watch-glass, or in a small vial." This testing is continued from time to time until a drop of the mixture of starch and malt extract remains "nearly colorless" when tested with the iodine solution, which, as Prof. Dudley says, "will complete the action,"—that is, the conversion of the starch by the diastase of the malt extract. The time required for this conversion is noted in each case, and the malt extract valued accordingly, the best, of course, being that which has required the least time for the conversion of the starch.

Now this method of testing with iodine solution may, under proper conditions, answer as a qualitative test of the presence of diastase in a malt extract, but I have fully satisfied myself by a number of very careful experiments that, as a means of quantitative or comparative testing of the diastatic activity of different extracts, it is absolutely worthless, and in the highest degree untrustworthy, and the results obtained by its use are conflicting and contradictory. Moreover, it has been shown by J. Kjeldahl (Dingler's *Polytech. Journ.*, 235, p. 379), that determinations of diastatic action are only of comparative value when the amounts of starch used are considerably in excess of the amount converted by the action of the diastase, and that the iodine reaction does not fail until the formation of sugar ceases, at which point there is no longer such an excess of starch present.

Prof. Dudley quotes Payen as authority for the statement that the action of diastase upon starch "continues only until 51 per cent. of the starch has been converted into a mixture of maltose and dextrine, at which point it ceases until the maltose has been removed." It has, however, been shown by O'Sullivan (*Journ. Chemical Soc.*, 1872), Kjeldahl, and other more recent observers, that this statement of Payen is erroneous, and that a conversion of from 66 to 68 per cent. is easily accomplished by diastase, and that the action does not entirely cease even at this point, but still proceeds, though very slowly, until the starch is entirely converted; and that the presence of maltose has no influence whatever upon diastatic action.

Beyond all question the best method for the comparative testing of the diastatic activity of malt extracts is that which has been generally employed by all observers, and which consists in directly determining the amounts of sugar formed by a given amount of the extracts from a large excess of starch in a given time.

After a good many experiments, to determine the most favorable conditions, I have finally settled upon the following method of procedure as giving the best results, and being the most convenient in practice.

A 5 per cent. solution of the extracts to be tested is made by dissolving 5 grammes of the extract in 100 c.c. of water; 5 c.c. of this solution (containing 0.25 gramme of malt extract) is added to 250 c.c. of 3 per cent. starch paste, formed by adding 30 grammes of Bermuda arrowroot to 1 litre of boiling distilled water, and allowing the mixture to cool.

The various mixtures are then carefully kept at the same temperature of 55° to 60° C., by immersion in the same water-bath, or other suitable means, for thirty minutes. At the end of this time the action of the diastase is stopped, either by raising the temperature to the boiling point, or, better, by the addition of 2 or 3 c.c. of a 10 per cent. solution of caustic soda. The mixtures are then carefully diluted to a given volume, and the amount of sugar in each determined by means of a standard Fehling's solution. The amount of sugar contained in the malt extract added is also determined, which amount is to be deducted from the total amount found after digestion with the starch paste; the remaining amount of sugar is that which has been formed from the starch by the action of the diastase, and the relative amounts found in the several cases represent directly the relative diastatic activity of the several malt extracts.

It is absolutely essential that the starch paste should be prepared as directed above. Bermuda arrowroot is almost the only form of starch obtainable in the market which is not more or less alkaline, and it seems to be almost impossible to remove this alkalinity by washing.

It has recently been shown by Duggan (*Amer. Chem. Journ.*, vol. vii., No. 5) that the amount of sugar formed is only directly proportional to the amount of diastase present when the solution is perfectly neutral; and that the amounts of sugar formed by a given quantity of malt extract from ordinary starch and from arrowroot, under exactly similar circumstances, may differ by as much as 90 per cent.

The use of ordinary hydrant-water in place of distilled water in preparing the starch paste, may, according to Duggan, occasion a difference of 40 per cent. in the amounts of sugar produced.

Of course, the amounts of malt extract and starch paste used may be increased or diminished as desired, but I believe that the quantities given above will be found to be the most convenient in practice, and under no circumstances must the proportion of starch to malt extract be less than that given above (28 : 1). It may even possibly be found that, in some cases, this proportion is too low, and if in any experiment the amount of sugar produced should be found to be equal to one-third of the starch used, the experiment should be repeated with an increased proportion of starch to malt extract.

I have carefully tested, according to the method just described, samples of the first five brands of malt extract given in Prof. Dudley's table, and the results are given in the table below. In order to obtain samples which should, as nearly as possible, represent the quality of the malt extract at present being put upon the market by the several manufacturers, and to obviate any possible deterioration which the extracts might undergo with age, the samples used in my experiments were obtained from a large wholesale house in this city, and were the freshest on hand at the time. As neither the W. S. Merrell Co.'s extract nor Forbes's "Liquor Diastase" could be obtained in Baltimore, samples of these preparations were obtained direct from the manufacturers through the agency of the wholesale house just mentioned.

The following are the results obtained:

Name.	Weight of maltose produced
Maltine	0.612 gramme.
Forbes's Liquor Diastase	0.407 "
W. S. Merrell Chemical Co.'s Extract of Malt	0.232 "
Trommer's Extract of Malt	0.132 "
Keasbey & Mattison's Extract of Malt	apparently no action.

I had already found, in previous experiments, that the remaining three brands of malt extract mentioned in Prof. Dudley's list, have no diastatic power, and, therefore, did not consider it necessary to include them in these experiments.

It will be seen that my results present certain wide differences from those obtained by Prof. Dudley; notably in the case of Maltine. The figures given above are so completely in accordance with the results obtained by me in very numerous experiments which I have had occasion to make heretofore with this preparation, that I am certain of their correctness, and the very remarkable result obtained by Prof. Dudley ("apparently no action in three hours") can only be accounted for by the supposition that he has used in his experiments a sample of Maltine in which the diastase has been, by heat or otherwise, accidentally destroyed.

It is a perfectly well-known fact, of which any physician can easily satisfy himself in a very few minutes, that Maltine does have a very decided and rapid action upon starch, and Prof. Dudley's statement is in no way a fair one as regards the quality of this preparation as placed upon the market by the manufacturers.

In Prof. Dudley's experiments the proportion of starch to malt extract used (4:1), is far too low; this is shown by the fact that, taking his own statement that "the iodine reaction fails as soon as the saccharification has affected a quarter of the starch" as correct, he has obtained in thirty-nine minutes with his best preparation (Forbes's), a conversion of only one part of maltose to one part of malt extract, whereas in my experiments I have obtained, with the same preparation, more than double this amount of conversion in the same time.

Moreover, since no especial mention is made upon the point, it is probable that Prof. Dudley used in his experiments ordinary alkaline starch, which would still further diminish the amount of maltose formed, and utterly destroy the comparative value of the experiments.

To show how very great an effect the use of ordinary starch has upon the result of these experiments, I have repeated them as before, using in this case, however, starch paste made from ordinary starch and hydrant water, in place of that made from arrowroot and distilled water used above, and 0.5 gramme instead of 0.25 gramme of each of the preparations.

In this case the following results were obtained:

Name	Weight of maltose produced.
Maltine	0.490 gramme.
W. S. Merrell Chemical Co.'s Extract of Malt	0.217 "
Trommer's Extract of Malt	0.114 "
Forbes's Liquor Diastase	0.113 "

It will be noticed by these results that, not only is the amount of sugar produced very much diminished by the use of ordinary starch, but that the relation existing between the amounts formed by the various preparations is altogether changed. This is most probably due to the fact that the varying amounts of acid contained in the several malt extracts serve to neutralize, more or less completely, the alkalinity of the starch, and according as this neutralization is more or less completely effected, so will a greater or less amount of sugar be produced.

It has been stated above that in neutral solutions, with a large excess of starch, the amount of sugar produced in a given time is directly proportional to the amount of diastase present; to illustrate this, I give the following table of results obtained by Duggan in allowing varying amounts of a 5 per cent. solution of malt extract to act upon starch for thirty minutes at a temperature of 55° C.

c. c. of 5 per cent solution of malt extract.	Weight of maltose formed.	Weight of maltose per c. c. of malt extract used
1	0.475 gramme.	0.475 gramme.
2	0.937 "	0.469 "
3	1.381 "	0.460 "
5	2.269 "	0.454 "

The figures in the first column give the number of cubic centimetres of 5 per cent. solution of malt extract used in each case; those in the second column give the total amount of maltose produced, while those in the third column show the amount of maltose formed per cubic centimetre of malt extract solution used in each of the experiments, and this amount is seen to be very nearly equal in each of the four experiments; that is, the total amount of maltose produced is very nearly directly proportional to the amount of malt extract used.

The statement which Prof. Dudley makes, that in the case of five extracts which showed practically no diastatic properties, "in two cases as much beer, and in the others an equal amount of molasses, would be of almost, if not quite, as much benefit to the consumer," also deserves some notice.

While it is likely that rather too much importance has been attributed to malt extract as an article of food, the extended experience of Dr. Milner Fothergill and others has shown, beyond all doubt, that its value in this respect is much greater than Prof. Dudley seems to suppose, and his statement quoted above is by no means borne out by experience.

It is proper that I should state, in conclusion, that these experiments have been undertaken solely on account of the importance of the subject to the medical profession and the public, and without the suggestion or knowledge of any manufacturer.

Chemical Laboratory of the University of Maryland,
Baltimore, Nov. 1885.

ON THE INCURABILITY OF CERTAIN NERVOUS AFFECTIONS OCCURRING AMONG SYPHILITICS.[1]

By R. W. Amidon, A.M., M.D.,
of New York

The writing of this paper originated from a conviction in my mind, in the first place, that syphilis is by many overrated as an etiological factor in nervous diseases, and, in the second place, that when a history of syphilitic infection can be made out, it leads many to give a more favorable prognosis than the real pathological condition warrants.

The first error arises partly from the fact that syphilis, like malaria, is a convenient peg to hang a disease on, but more, I think, because equally important factors in the production of organic nervous diseases, such as alcohol, tobacco, sexual excesses, worry, exposure, etc., are lost sight of; the second error consists in the fact that there occur, among syphilitics, obscure nervous diseases which seem to be, but are not, of a specific nature, and also because some ignore the fact that, while syphilitic growths are tolerably amenable to treatment, the pathological conditions which their presence excites are not so curable. A gumma may be absorbed, but the destruction its pressure has caused, or the vascular changes it has brought about, vanish slowly, if at all. An endarteritis may subside, but the necrotic softening, the vascular occlusion caused, is incurable.

To illustrate my meaning better, some cases from my practice will be briefly cited, which have many features in common. They all had suffered an indubitable specific infection; they all, at a period remote enough to suppose the tertiary stage had been reached, developed alarming nervous symptoms; and they all were submitted to thorough mixed treatment with varying success, but no cure.

Four cases are cerebral, two are cerebro-spinal, and four are spinal.

Case I. *Recurrent gumma, producing aphasia and epilepsy; cured. Periencephalitis, secondary to the gumma, causing partial right hemiplegia and dementia with tremors; not cured.*—A married business man, thirty-two years of age, consulted me in the winter of 1882 for aphasia and headache. He had contracted syphilis at seventeen, and had always abused alcohol and tobacco.

In the summer of 1880, when thirty, after some weeks of general malaise and dull headache, he had his first epileptic convulsion. A month later he had a second. He was put on treatment (probably specific) by his doctor and remained well for six months, when he had several partial attacks without loss of consciousness. When thirty-one, he noticed a return of headache with thickness of speech, and had another severe convulsion. Again several weeks of mixed treatment apparently cured him, and he stopped taking the medicine. When he consulted me he said that, some days before, left hemicrania had come on, with a dizzy feeling toward night. In the last few days his speech had become thick, and he had caught himself using wrong words.

I found him rather cachectic, with a stupid facies and thick speech. His optic nerves were normal, but he had a marked right hemiplegia.

After two weeks of mixed treatment, the headache disappeared, speech was fairly distinct, the weakness of the left side was only to be detected by the dynamometer, and he seldom made aphasic mistakes, except when tired at night. No further improvement took place, and there remained a slight right hemiparesis and a perfectly appreciable degree of de-

[1] A paper read before the Section on Neurology of the New York Academy of Medicine, December 11, 1885.

mentia, shown by dislike and inaptitude for business, inattention to surrounding affairs, disinclination to talk, thick speech, and expressionless facies.

Remarks.—In this case the gummy growth causing the aphasia and epilepsy was cured, while the secondary cerebral destruction and periencephalitis, causing hemiparesis and the dementia, were not affected. It shows the recurrent tendency of such growths and the necessity of prompt, thorough, and continued treatment

A gummy tumor, itself curable, if overlooked or inefficiently treated, does damage which is incurable. By unrelieved pressure it destroys nervous elements which cannot be replaced, and by constant irritation it excites a meningitis of a low grade which irreparably damages the subjacent nervous substance.

It was once my good fortune to see the brain in a case in which a gummy tumor, causing hemiplegia, epilepsy, and coma, had been removed by thorough mixed treatment. The patient died of nephritis and the depression in the convolutions, formerly occupied by the gumma, was filled by loose, œdematous connective tissue.

CASE II. *Gumma on humerus; cured. Occlusion of (probably) the left lenticulo-optic artery. Partial right hemiplegia and anæsthesia. Right hemichorea.*—Mrs, F., thirty years of age, consulted me in the summer of 1881 for a tremulousness of the right side. When twenty-four years of age, she contracted syphilis from her husband. When twenty-seven, while under treatment for syphilis, she had left hemicrania and a rather sudden loss of power in the right arm and leg with numbness, but no loss of consciousness or aphasia. A pretty complete recovery took place under mixed treatment and electricity. After the apoplectic attack she walked and used the right hand, but not for fine work. When she became excited, her whole right side trembled violently. Examination revealed a slight paresis and anæsthesia of the right upper and lower extremities, which were warmer than the left, and moist.

After being under observation about a month, she began to complain of pain about the right elbow, first nocturnal and then continuous, but worse in bad weather, followed by numbness and impaired tactile sensibility in the right forearm. Examination revealed a sensitive node on the right humerus under the triceps tendon. Mixed treatment promptly dispelled the node and its attendant phenomena, but had not the slightest effect on the cerebral trouble.

Remarks.—There was in this case probably a syphilitic endarteritis leading to thrombosis, and consequent necrotic softening in the region of the left lenticular nucleus, judging by the hemianæsthesia, and transitory slight paralysis followed by hemichorea. This thrombosis, whether syphilitic or not, left an incurable lesion, while the frank gumma on the humerus yielded speedily to specific treatment.

CASE III. *Occlusion of a branch of the left Sylvian artery. Partial right hemiplegia, anæsthesia, and aphasia. Hemicrania and petit mal.*—Mr. L., forty years of age, consulted me in the winter of 1882. When thirty-two he contracted syphilis, and besides had had repeated sores and gonorrhœas. Had been given to sexual excesses. Five months before I saw him there commenced a numbness in the right thumb which invaded the whole hand, and in fifteen or twenty minutes he lost the power of speech. Fifteen days later he had an apoplectic attack When he recovered and since, he noticed a loss of power in the right hand. His difficulty of speech was variable, and consisted chiefly in a hesitancy. The word "three" annoyed him especially. He had headache and one to ten "dizzy spells" a day.

Examination revealed great weakness of the right face and arm, with anæsthesia. The left optic nerve was normal, the right fundus was hidden by a cataract dating from childhood.

Remarks.—In this case there undoubtedly was widespread endarteritis, perhaps most marked in the left internal carotid, with complete occlusion and thrombosis of one of its terminal branches.

The variability of his impairment of speech is an exemplification, in a modified degree, of the so-called intermittent aphasia—supposed by some to be pathognomonic of syphilis. It probably is produced in this way. The centre for speech, we will say, is already anæmic, because of the gradual narrowing of the lumen of its nutrient vessel by specific endarteritis. So long as a strong heart with a high arterial tension is present, enough blood is forced through the narrowed vessels to maintain the nutrition and consequent function of the part. A marked fall of intravascular pressure, however, leaves the part supplied by the narrowed artery almost bloodless, and a consequent suspense of function or aphasia ensues.

CASE IV. *Probable periencephalitis. Headaches, insomnia, loss of memory, hallucinations, impaired speech, tremulousness, epileptiform attacks. Dementia.*—A machinist, thirty-three years of age, consulted me in August 1882. He contracted syphilis when twenty-one. Besides his regular duties he worked hard and late, when he should be resting, at designing and constructing naval engines. For some time he had had headaches, relieved by mixed treatment.

In the year preceding his call on me, he had been excessively annoyed by insomnia, loss of memory of recent events, hesitant speech, and omission of words and letters in writing. He had also noticed a dilatation of the left pupil.

Three months before I saw him his general headaches had returned, and he had become very headstrong and restless.

On examination I found his facies dull, his speech slow, thick, and hesitant. There was slight ptosis of the left eyelid and dilatation of the left pupil, which was sluggish to light. The tongue was protruded slightly to the right and was finely tremulous. A doubtful paresis of the right face was also present. There was a crepitus between the fingers. The knee reflexes were exaggerated. Both optic nerves were blurred. Thorough and persistent mixed treatment availed nothing.

He became more irritable, noises particularly disturbing him. His sleep remained poor and he had hallucinations of sight when his eyes were closed, which amounted at times to terrible visions. He complained much of dull pain behind the ears, in the occiput and back of neck. At times would stagger

and feel dizzy. A subsequent examination of the eyes showed his vision to be $\frac{6}{xxx}$ which, with + 1.5 s., was brought up to $\frac{6}{xx}$. He had an insufficiency of the externi of two degrees for the distance. The left disk was very much blurred, the right only fairly defined.

In the second month of my observation he had two "faint spells" while playing cards. He let the cards fall from his hands; could not talk for an hour; felt weak, and lay down. He dropped things with unusual frequency, forgot friends' names, and did not seem to understand as well as formerly. On his last visit to my office he sat familiarly on my desk.

When away in the country, his letters one day were faultfinding and abusive, the next day repentant and apologetic. They always contained many erasures, omissions of words, incoherent sentences, and much horrible spelling.

Remarks.—In this case there was undoubtedly a diffuse periencephalitis due, probably, both to his close application and syphilis, and he presented an almost perfect example of general paresis.

Case V. *Occlusion of the left lenticulo-optic or terminal branch of the left Sylvian artery. Posterior spinal sclerosis. Partial right hemiplegia and hemianæsthesia. Slight dementia and occasional maniacal attacks. Ataxia.*—A teacher, forty-three years of age, consulted me in the spring of 1883. When thirty-three, he had contracted syphilis. When forty-two years of age, serious nervous symptoms developed in the following order: There first appeared a heaviness of the legs and numbness, marked in the feet, slight in the fingers. He noticed an inequality of the pupils, and at times a dimness of vision. Tendon reflex was present at the knees at this time, but was slight. He was sleepless, depressed, and irritable, much worse in bad weather. Later, he had diplopia on looking to the left, and some aching pains in the legs, mid-dorsal region, bladder, and rectum. A short time before I saw him, after a few days of headache, he awoke one morning with a numbness of the right side throughout, with a marked weakness of the right arm and leg. Any misstep caused much vertigo, worse on the left side of the head.

At this time there was a marked right hemiparesis of the face, arm, and leg, and a moderate anæsthesia of the same distribution, with a peculiar scalded feeling in the right finger-tips.

He had no knee reflex, stood well with eyes closed, and his walk was rather kicking and stamping. He talked in a hesitant way, and made some mistakes. His ocular movements were good, although his interni were weak. The outline of his right optic nerve was very much blurred.

He became very morose, uncommunicative, capricious, headstrong, and, his wife says, at times abusive, unnatural, and almost violent. Under vigorous mixed treatment, the hemiplegia *almost* vanished; the anæsthesia, ataxia, and mental peculiarities remained unchanged.

Remarks.—Prompt treatment in this case probably resolved an endarteritis and prevented any further destructive processes. The necrosis which had occurred, of course remained. The persistence of mental peculiarities suggested the presence of a slight periencephalitis, which I have no doubt existed. Whether the spinal lesion was anything more than the sclerosis that often goes with periencephalitis, I cannot say; but it must have been much more marked in the posterior columns than elsewhere.

Case VI. *Periencephalitis and disseminated cerebro-spinal lesions. Dementia, tremors, impaired speech, impotence, and irregular paraplegic symptoms. Very marked and precocious arcus senilis.*—An artisan, thirty-eight years of age, consulted me in the summer of 1883. For years he had abused alcohol and tobacco. When nineteen, he contracted syphilis. When twenty-eight, he was almost beaten to death by four ruffians. In his thirty-third year, his speech began to get slow and thick, and he suffered much from tinnitus and vertigo. At the same time, he found his legs not as useful as formerly, being weak and uncertain, especially at night. His feet shuffled and dragged, and, when tired, there were pricking sensations below the knees. When thirty-five, complete impotence supervened, preceded by an interval of sexual excitement, during which he had intercourse two or three times each night. Since his thirty-sixth year, he had had precipitate micturition and sometimes an intense desire to pass water, with retention and dribbling. Very seldom, he had pricking pains in the legs and occasional pain across his brow. When thirty-seven, he had a temporary diplopia. His bowels became constipated after his legs failed, he thinks, from lack of exercise.

I found him pale, and with brown macules of large size in various parts of his body. His legs, with exaggerated reflexes and some hyperæsthesia, were strong, but he could not walk without help. His hands were strong, but both were slightly ataxic and hyperæsthetic. There was atrophy of each first interosseous muscle and each hypothenar eminence. The pupils were equal and responsive, there was a very marked arcus senilis, and the optic nerves were normal. The tongue was coarsely fibrillary, the speech thick and slow, and the facies dull. Thorough mixed treatment and entire rest produced no amelioration.

Remarks.—There probably were in this case disseminated cerebro-spinal lesions of the sclerotic type, and it is my opinion that sexual excess, the abuse of alcohol and tobacco, and the shock from his severe beating had as much to do with the production of his disease as the more remote syphilitic infection.

Case VII. *Central myelitis. Paraplegia. Impotence. Blindness. (Tobacco?)* — A messenger thirty-eight years old, contracted syphilis when thirty-three. He had always been nervous and had abused tobacco. He never could see very well with the left eye. At thirty-five his sight began to fail, and precipitate micturition, gradually growing worse, began to trouble him. Later, constipation appeared, and one attack of retention of urine. Two months before seeing me, sexual appetite and power left him, and he began to notice a weakness in the legs with stiffness, made worse by walking. He had some sharp shifting pains in the scalp.

His left pupil was dilated, the left optic nerve white and the right paler than normal. He had exaggerated knee-reflexes and his walk was spastic and dragging. There was no ataxia or anæsthesia.

Remarks.—The central myelitis, in this case causing paraplegia and impotence, might have been, but probably was not, dependent on syphilis. The patient was of a nervous temperament and by occupation was much exposed to the weather. The atrophy of his optic nerves causing his impairment of visual power might be accounted for by his abuse of tobacco.

CASE VIII. *Right hemimyelitis. Spastic paralysis of the right leg with perhaps exalted sensibility. Anæsthesia of the right leg, thigh, and side.*—A laborer contracted syphilis when twenty-three. He was hard-working and much exposed to changes of temperature. Four months before he consulted me, when thirty-five, nervous symptoms appeared in both lower extremities but in a different way. On the left side there first appeared a numb, sleepy feeling in the left foot, which in twenty-four hours ran up to about the level of the ribs. There was also a slight weakness of the left leg and a feeling as though the left sole was spongy.

On the right side there was first noticed a loss of power in the leg and a slight, sleepy feeling in the great toe. He thought the right leg stiff, as well as weak. At first he had involuntary defecation and retention of urine, which passed away.

The numbness on the left side later crept a little higher and there developed into a partial cincture feeling in the upper left abdominal region. There was a good deal of spinal trepidation in bed if excited.

His walk was springy on the right leg, and he swung the left. The right knee reflex was exaggerated. There was a partial anæsthesia in the numb areas, but no atrophy on either side.

Treatment availed nothing. The lesion involved principally the right half of the cord, as on the right side the motor and on the left side the sensory functions were most impaired.

Remarks.—The lesion, I surmise, was primarily a hemimyelitis turning into a patch of sclerosis. In its etiology, I think, syphilis played a minor part.

CASE IX. *Chronic atrophy of the cells of the anterior horns of the spinal cord. Rheumatic arthritis. Progressive muscular atrophy. Articular deformities.*—A woman nursing a patient with secondary syphilis contracted the disease at the age of fifty-nine. Four years later she began to have rheumatic pain in the shoulders, later in the elbows, and later still there were soreness and numbness of the hands. Four months before I saw her, a slight swelling commenced on the dorsum of the head of the second metacarpal bone and ulnar deviation of the fingers, and also a falling away of the first interosseous space of the right hand. Soon after, the same changes began in the left hand, and a falling away in the forearms was noticed. The patient had noticed that the wasting had been fibrillary.

When I saw the patient at the age of sixty-four, she had the ordinary deformities of rheumatic arthritis and muscular atrophy, of the progressive type, chiefly involving regions of both upper extremities.

Remarks.—This woman's hard work and old age entitled her to both rheumatic arthritis and progressive muscular atrophy, independently of the syphilis, which, I think, had nothing to do with either.

CASE X. *Posterior spinal sclerosis. Locomotor ataxia.*—A business man contracted syphilis when twenty-one. He had been overworked when a boy. When thirty-three, he began to complain of numbness and some loss of power in the legs, the left first. At the same time he noticed slowness of micturition and failing virile power.

He consulted me in the winter of 1882, a case of locomotor ataxia—of such a typical nature that it need not be detailed. Anti-syphilitic treatment, of course, was inefficacious. Of the relation between posterior spinal sclerosis and syphilis, more will be said anon.

Of these ten cases, eight were men and two were women. One women was infected by her husband, one by a patient, one man was innocently infected by a cut on the finger; the rest contracted the disease in the orthodox way.

The average age at infection was twenty-eight years, the earliest was at seventeen, the latest (the nurse) at fifty-nine.

The average period of incubation, supposing the nervous disease to have been tertiary, was nine years; the shortest time being two, the longest fourteen years.

The pathology of these cases is widely different. Two, among other lesions, had frank gummata, which promptly yielded to specific treatment.

Three cases had symptoms and a mental state pointing to a periencephalitis. One abused alcohol and tobacco; one abused alcohol and tobacco and was once nearly beaten to death, and was very degenerate, with an arcus senilis at thirty-eight; and the third was a rather precocious inventor. All might have committed, what to them individually, were sexual excesses. With some scepticism in my mind as to the etiological importance of syphilis in these cases, I am sure it found powerful synergists in alcohol, tobacco, sexual excess, mental strain, etc., or, at any rate, that the periencephalitis is not itself specific, but secondary to a syphilitic lesion, which may have been cured. Periencephalitis from any cause has a bad prognosis, provided we except some cases of transient dementia due to alcohol or the bromides. Periencephalitis in syphilitics I do not consider any exception to the rule, and is just as incurable as any.

Dr. Goldsmith, Superintendent of Danvers Asylum, in a very able paper on syphilis and insanity,[1] which I would like to quote at length, says:

"When a patient with symptoms indicating progressive paresis has a previous history of syphilis, I think he is more likely to have paresis without being more likely to recover from it; and in my experience, active treatment by mercury and iodide of potassium usually has a debilitating and injurious effect. The same is true of all

[1] Syphilis and Insanity, by W. B. Goldsmith, M.D., Boston Med. and Surg. Journ., November 5, 1885.

forms of mental disease which are not preceded by severe headaches, paralysis of limited groups of muscles, or localized disorder of sensation—that is, by symptoms indicating a circumscribed new growth. When such symptoms exist, the frequent efficacy of adequate anti-syphilitic treatment is unquestionable, and I have no doubt that mental disease can be averted by its employment."

Three cases had rather sudden hemiplegic symptoms, caused by arterial occlusion or rupture. When this is due to syphilis it depends on an endarteritis obliterans, leading to gradual encroachment on the lumen of the vessel, final thrombosis, and consequent necrotic softening. The frequent apoplectic onset in these cases is explained in the same way as is intermittent aphasia, by a weak heart suddenly failing to force enough blood through the constricted vessels to nourish the part.

Syphilitics are as liable to simple embolism, thrombosis, and hemorrhage, as other patients; and, of course, these conditions must be excluded. However curable the syphilitic endarteritis may be when treated promptly, the acute softening following unrelieved thrombosis, or the subsequent cicatricial changes, are not one whit more curable because syphilis thickened the vascular walls. The destructive process extends, or reparative changes take place, subject to ordinary laws.

Mixed treatment undoubtedly brings about vascular changes that check the morbid process and render a recurrence less likely. In all these cases a partial right hemiplegia and anæsthesia remained, proving the existence of a destructive lesion.

Two cases had spinal, in addition to cerebral, lesions, which in only one case were typical. Case V., in addition to his evident cerebral thrombosis, had probably a sclerosis of the posterior columns of the cord; while Case VII., superadded to a periencephalitis, had a doubtful disseminated sclerosis.

Three cases had spinal lesions only. One had a central myelitis, one progressive muscular atrophy, and one posterior spinal sclerosis. These may be attributed to any one of many causes, as well as syphilis. The question arises, Does rebelliousness to mixed treatment argue at all against the syphilitic origin of lesions? Why expect destructive lesions resulting from vascular disturbance to disappear any sooner because syphilis altered the vessels? Nervous tissue destroyed by disease, be it specific or simple, is rarely regenerated.

The question for us to decide, in preparing to make a prognosis, is: Has a destructive lesion occurred; and, if so, where is it located, and what is its extent? Indications of a destructive lesion should lead one to a cautious prognosis as regards perfect recovery, while the prognosis for life and a moderate amount of health may be good. A gummy intracranial or spinal growth giving rise to alarming symptoms, may vanish, as by magic, upon prompt treatment. The symptoms of these frank, specific growths are, as a general thing, characteristic and widely different from those of the more insidious destructive lesions.

An intracranial gumma often heralds itself by sharp, localized headache, gradually deepening paralysis, aphasia, epilepsy, and optic neuritis; while destructive lesions are more apt to have diffuse, dull headache, stationary or lessening paralysis, or aphasia, rarely epilepsy or optic neuritis. Intraspinal gummata give rise to a painful paraplegia, while an inflammatory or destructive change gives rise to various and atypical sensory and motor manifestations.

As to the pathology of these cases, I can say but little, as such a discussion opens the whole subject of the pathology of syphilis. This I will say, that, so far as can be told without autopsies, no permanent pathological condition was present in these cases which might not have been brought about by other etiological factors which were often present. The periencephalitis might be caused by alcohol, mental strain, or excesses: the arterial occlusion might be due to precocious disease not specific.

Two pathological conditions present in these cases, I think, are preëminently not of syphilitic origin. I refer to the chronic atrophy of the anterior horns in Case IX., and the posterior spinal sclerosis in Cases V. and X.

Syphilis has enough to bear, but I think it should not be made to shoulder true progressive locomotor ataxia. The late lesions of syphilis are focal or diffuse, not systematic; and, though multiple, are very rarely symmetrical. They may implicate one or both sensory tracts at a certain level, giving rise to sensory or ataxic phenomena, but not of the regular locomotor ataxia type; and it is unreasonable to suppose that syphilis will pick out bundles of fibres in the posterior columns and produce in them a symmetrical, equable sclerosis throughout perhaps the whole cord, leaving entirely intact every contiguous structure, and every other part of the cord. Of late, especially, the profession seems to cling tenaciously to the syphilitic etiology of tabes dorsalis, ignoring entirely the excesses, exposures, and mental or physical strains so often present. Donkin, in an able paper, says:[1]

"Syphilis, that inexhaustible cruse of ætiological oil, may be regarded as having been weighed in the balance of causation and found wanting. Recourse was, doubtless, had to it, with that natural longing for finality and logical rest which characterizes the minds of most of us; but, both on account of the wide prevalence of syphilis and the known habit of its morbid deposits, *which do not make choice of functional tracts*, its supposed causative *rôle* in locomotor ataxia cannot be at all satisfactory to the serious inquirer. The suggestion, in order to remove a difficulty from the syphilitic theory, that the morbid process may have been first diffused over the cord, and afterwards become localized in the posterior columns, is somewhat gratuitous, and certainly quite out of accord with the clinical history of most cases of ataxy.

"But, though the origin of this disease is confessedly obscure, there would appear to be some points of probability in the older notion, that it may lie in what is, to the affected individual, relatively excessive sexual excitement."

These remarks seem to me extremely sensible, and come to my mind with great weight. Leaving theoretical discussions aside, a study of the foregoing

[1] Suggestions as to the Ætiology of some of the So-called Systematic Diseases of the Spinal Cord, by H. Donkin, M.B., F.R.C.P. The Brain, Jan. 1883.

cases emphasizes the fact that treatment of nervous affections among syphilitics must be prompt and persistent to be successful, as postponed or spasmodic treatment often allows irremediable destruction to take place. With this fact in mind, can we say to ourselves that we protect syphilitics as well as we should against grave nervous diseases?

My opinion is that it is the duty of physicians to warn every syphilitic patient of the danger he is in of developing at any time grave nervous symptoms. We should tell him that, on the appearance of headache, neuralgia, ocular disturbances, troubles of speech, vertigo, unusual sleepiness or insomnia, transitory or trifling paralysis, tremors, fits, weakness or numbness of the legs, sexual excitement, or impairment or troubles with bladder or rectum, he should at once consult a physician, and call his attention particularly to the syphilitic history.

TWO CASES OF RENAL SURGERY.[1]

DOUBLE NEPHROTOMY: ON ONE SIDE FOR PYONEPHROSIS AND CALCULUS; ON THE OTHER, FOR ACUTE OBSTRUCTION OF THE URETER. NEPHRECTOMY FOR PYONEPHROTIC KIDNEY: IMPROVEMENT.

BY F. LANGE, M.D.,
OF NEW YORK.

CASE I.—About the middle of September of this year I was called in consultation by Dr. Neumer, of this city, to see a Mr. T., thirty years of age, who pretended to have suffered from urinary trouble since his twelfth year, to have had pus in his urine all the time since, which has become most abundant during the past three or four weeks, while at the same time pain and frequency of urinating have become intolerable. An examination under chloroform, which had to be administered on account of the excessive irritability of the patient, showed no stone in the bladder. A round, resistant, immovable tumor, about the size of the head of a newborn child, was felt in the region of the left kidney; the right kidney could likewise be distinctly felt, hence was dislocated downward, but did not seem to be enlarged to any considerable degree. The pain was located almost exclusively in the left side and in the pendulous portion of the penis. Urine contains a large quantity of pus. Microscopically, nothing but pus-cells, no blood, no cylinders.

Simple pyonephrosis on the left side was diagnosticated. The absence of blood in the urine, and of symptoms that might have pointed to an obstruction at any time, spoke against stone. The other kidney was apparently not healthy either; probably chronic pyelitis and interstitial nephritis existing there.

Simple nephrotomy on the left side was performed on the 2d of October. Lumbar longitudinal incision. In the region of the perinephritic fat a hard, resistant, fibrous mass was encountered, the wall of the pyonephrotic sac. After having cautiously penetrated through it I struck stone, and removed, after a tedious digging of about an hour and half, quite a considerable quantity of irregular shaded calculi, which apparently were scattered in all directions through the recesses of the calices. They were mostly, with their irregular edges, embedded so deep into the tissue that their removal was impossible without some bleeding and injury to the tissues. Mostly thin partition walls had to be broken by means of the finger and instruments in order to get at a new nest of stones. Though finally I did not feel any more stones, I had a moral conviction that there were more, but I desisted from further proceeding on account of the weakness of the patient. Drainage, frequent antiseptic irrigation with warm borosalicylic acid, small doses of morphia. The patient after about six weeks was discharged in a very much improved general condition. The pus from the urine had diminished very promptly, without disappearing entirely. The discharge from the now existing pyonephrotic fistula was moderate, apparently very little admixture of urine. The palpable tumor had considerably diminished in size.

Now comes the most interesting episode in the history of this remarkable case:

About the 25th of November the patient commenced to complain of pain in the abdomen. His bowels became obstinately constipated, and a few days later the urine was remarkably scanty. On the 28th the patient was reported to be very sick. Being unable to visit him on account of other engagements, I asked, in the absence of the family physician, another colleague to attend him, who sent me word that the man had general peritonitis. He had also tried to empty his bladder, because for almost twenty-four hours no urine had been passed, but had only withdrawn a few drops.

In seeing the patient on the morning of the 29th, I found the man with a tympanitic, very painful abdomen. The principal pain, however, was located in the right side, while the first operation had been done on the left. His pulse was weak, dyspnœa, beginning collapse; not a drop of urine in the bladder. I diagnosticated occlusion of the right ureter, and proceeded to operate at once, after the patient had been transferred to my institution. In first exploring the left side, because of the idea that eventually some inflammatory process might have proceeded across to the other side from the kidney originally operated upon, I again found stones, and after some searching removed a considerable quantity.

I then did lumbar incision on the right side, having placed the patient on his belly with slight inclination toward the side of the operation, as recommended by me before for exploratory incision of the pelvis of the kidney, found all the connective tissue under the quadratus lumborum infiltrated with watery fluid, resembling urinary infiltration; removed the fat from the rear aspect of the kidney and found in its substance, and quite near the insertion of the pelvis, an abscess, which seemed about to perforate. After opening it, I passed my finger without resistance into the pelvis and in withdrawing it a great quantity of bloody urine escaped. The pelvis was so much dilated that I was very well able to pass my finger into the first part of the ureter. Lower down, in introducing a slender, long, thin

[1] Read before the New York Surgical Society, Dec. 22, 1885.

bladed dressing forceps. I met with a resistance without having the touch of a stone. I then, by means of a large syringe, injected warm water in the direction of the ureter, when after a few injections this mass emerged; a whitish-gray plug, about the size of the end phalanx of the small finger, somewhat flattened and conical, resistant, but brittle, and apparently consisting of an old fibrinous clot into which watery substance and numerous gravel-like concretions were embedded. I then was able to pass a middle sized bougie directly down into the bladder without any resistance.

There was not inconsiderable venous hemorrhage, which, however, was easily checked by an iodoform gauze tampon after a middle-sized drainage tube had been inserted into the pelvis of the kidney.

On the first day after the operation three quarts of cloudy, slightly bloody urine had been discharged. Almost all the urine seemed to pass by the normal channel, and about one week after the operation the tube was removed. Several pieces of necrotic tissue passed at times with the urine, and in some of them, though they were entirely disintegrated, the outlines of glomeruli and urinary canaliculi could be detected. The patient's general condition has since remarkably improved, and though I do not have any sanguine hopes so far as complete recovery is concerned, I still think that the last operation has saved the patient from imminent destruction. He has now a superficial, healthy-looking, granulating wound on the right side, and a fistula discharging a moderate amount of pus on the left. The fact that during the occlusion of the right ureter no urine was found in the bladder, is conclusive proof that the left kidney has entirely lost its significance as a urine-secreting organ. I should not wonder if it contained still more calculi in some remote diverticulum of the cicatricial sac. The urine now passed has only a very moderate sediment of pus, its quantity is on an average three pints. Appetite very good. Evening temperature about 100°. Four weeks have passed since the operation.

Weight of stones removed, six drachms. About fifty pieces, varying in size from a pea to a hazelnut, besides hundreds of stone granules, consisting of oxalate and phosphate of lime, the latter predominating.

In the above case the presence of stone was a surprise to me, because at no time had there been any symptoms conclusively indicating stone.

In the following case stone had been diagnosticated both by me and by other physicians, while the operation taught us differently.

NEPHRECTOMY FOR PYONEPHROTIC KIDNEY: IMPROVEMENT.

Mrs. R., twenty-six years of age, married for a little more than three years and healthy, though somewhat delicate, until her present disease, gives a good family history. Menstruation appeared at her fifteenth year, and has always been regular except during two pregnancies in the first and second years of her married life. She dated her present disease from February, 1880, when, after a severe cold, bladder trouble set in, which was taken for and treated as cystitis, and became rather severe in the summer of the same year, at which time not infrequently a bloody discharge appeared with the urine, often in large clots and with free admixture of mucus. Gradually pain and discomfort became somewhat less without disappearing entirely. In 1881 the patient was treated by turpentine internally for about nine months. Besides that, she has taken all imaginable waters which are usually prescribed for these troubles. The patient was married in September, 1882, and became severely ill soon after, suffering excruciating pain until, after a protracted retention of urine, a large piece of flesh, as she says as large as a small fist, was discharged, and at last extracted from the bladder by herself, after which improvement of the general condition took place. Bloody admixture in urine, however, remained, which sometimes has been very free. Eleven months after marriage her first child was born. About twelve days later she commenced to suffer from severe pain in the lumbar region, which lasted for about three weeks, and was principally located, as the patient remembers, on her right side. Then followed a comparatively free interval until, about four months later. During the first four months of her second pregnancy similar pains set in, mostly in the right lumbar region, radiating toward the right knee. Often when she tried to get up after such an attack of pain, she had a feeling as though her legs were paralyzed, and as though she must raise them with her hands to put them into motion. Toward the end of her pregnancy she suffered again, less but very severely, also a short time after the delivery, when a similar attack to that after the first delivery occurred, and was of several weeks' duration. From January, 1885, until the following summer she was confined to bed, became gradually weaker, and was never without pain, while her urine was always more or less bloody and cloudy. During the months from July to October, during her stay in the country, she improved under liberal milk diet, to become worse again when she returned to the city. Throughout the last five years there seems never to have been normal function of the bladder, and never normal urine, almost always admixture of more or less blood, mucus, or pus. Her health has gradually failed, and when I saw her first in October, she presented in her extreme emaciation, nervousness, and irritability, a really miserable picture.

Under chloroform one was able to palpate both of her kidneys; they seemed to be about normal size, but were located a little lower down than normal. Examination of bladder negative. A moderate amount of sediment in the sometimes pale and watery at other times bloody urine. Microscopically, a great many epithelial cells from the bladder, pus, and red blood corpuscles. Specific gravity after about eight days of observation varying between 1011 and 1021. Quantity, a pint and a half to three pints. Once a piece of a granulated cylinder was detected. Very severe pain at intervals, located principally in the right lumbar region. Also dysuria. Patient reports that exercise markedly increases pain and amount of bloody admixture. At times pain is said to be quite intolerable. She also mentions that at

times, during severe attacks of pain, urine of more normal quality has been discharged.

Lumbar incision on the 26th of November, in belly posture. Ureter laid bare and opened. Difficulty in finding lumen, which seemed to be partly obliterated. A fine probe could be passed to the distance only of about one and a half inches. Pelvis of kidney hardly noticeable. Seems to have shrunk. Fatty tissue intimately adherent. Surface of kidney laid bare. The whole organ seems to be cystic. Some of the cysts punctured contain watery fluid, others a flocculent pus. The whole organ seeming degenerated and worthless, was removed. Adhesions on upper and lower end separated by actual cautery. Silk ligature in three portions around pedicle. Very insignificant loss of blood. No bad symptoms during or after the operation. After four weeks patient was discharged much relieved from pain and suffering; somewhat improved constitutionally. Urine with some change for the better, inasmuch as amount of pus and blood has been less, the latter for some time disappearing entirely. Bladder symptoms varying; as a whole, improved. There is no doubt that the remaining kidney is also in an abnormal condition, and the outlook for ultimate recovery is by no means flattering. At times the patient complains of a severe pain over the right iliac fossa and is extremely sensitive to pressure. From the condition of the ureter near the pelvis of the kidney. I should judge that an ulcerative process, leading to obliteration, must have taken place in its upper portion.

The removed kidney, which was of normal size and shape, shows almost no cortical substance, and consists of a large number of cystic cavities with smooth walls, mostly filled with pus, and varying in size from that of a hazlenut to that of a large walnut. Microscopically, the elements of the kidney are preserved in the remainder of cortical substance. I must say that the quality of the pus suggested to me that the nature of the process might be tubercular, though nowhere could cheesy deposits or infiltrations be found. I shall cause a more complete microscopical examination to be made.

MEDICAL PROGRESS.

Cutaneous Affections in Gonorrhœa.—In the *Revue de Médecine*, M. Gilbert Mallet invites renewed attention to the eruptions met with in the course of gonorrhœa. Carefully excluding all cutaneous eruptions that may be due to errors in diet or the administration of cubebs or copaiba, he classifies the remainder in three divisions: (1) Eruption closely resembling scarlet fever or measles; (2) rashes which may be described as those of "polymorphic erythema;" (3) purpuric patches. He produces evidence which suggests a probable relation of cause and effect between gonorrhœa and the eruptions of the first group. They come on, for the most part, late in the stage of the decline of gonorrhœa, last about twenty-four hours, and are followed by furfuraceous desquamation; they are often associated with severe gastro-intestinal disturbance, and can hardly, at first, be distinguished from the rash of measles or scarlatina. The second group is distinguished from the copaiba rash by (1) absence of the itching often present in that affection, (2) by the knotty appearance of the erythema, and (3) by the appearance of successive crops of eruption. The evidence in favor of the outbreak of purpuric patches does not seem so satisfactory. Some of the cases are probably those of peliosis rheumatica occurring in patients suffering from gonorrhœal arthritis. M. Mallet rejects the reflex and pyæmic theories of the origin of gonorrhœal rheumatism and the cutaneous manifestations, and argues strongly in favor of the absorption of a specific gonorrhœal virus.—*Weekly Medical Review*, December 26, 1885.

Therapeutic Uses of Sneezing.—The *St. Louis Medical and Surgical Journal* quotes Coiffier, who says in a recent work, "if an expectorant is indicated, and the remedy at hand fails to act as it should, provoke sneezing. A sneeze loosens up the air-passages, and sets the excretories into vigorous action. With children, a pinch of snuff is generally all-sufficient. With their elders, especially those in the habit of taking snuff, the poudre sternutatoire of the codex is better. Veratrine is a powerful provoker of sneezing—one one-hundredth part of a grain added to a half ounce (say 1:25,000) of snuff increases its sternutatory powers immensely. Again, there is nothing like a sneeze in expelling foreign bodies from the air-passages." M. Coiffier gave a number of incidents confirmatory of this axiom. In two instances where he failed to excite sternutation otherwise, he succeeded by conveying to the base of the nasal fossæ a minute portion of veratrine, scarcely the two-hundredth part of a milligramme, which he carried thither on the end of a sound.—*Medical Age*, Dec. 26, 1885.

Fatty Acids in Normal and Pathological Urine.—Jaksch, of Vienna, records the following results from recent experiments:

1. In normal urine traces of fatty acids are present.

2. In certain pathological conditions the fatty acids are present in relatively considerable amount. Thus, in the total renal excretion of twenty-four hours in fever patients, they are present to the extent of 0.06 gramme to 0.1 gramme, and in hepatogenous lipaciduria from 0.6 gramme to 1 gramme.

3. After the volatile fatty acids of the urine of febrile and hepatic diseases have been removed by oxidation, fatty acids still remain in the proportion found in normal urine; the acids so far found are formic, acetic, and butyric.—*Deutsche med. Woch.*, Dec. 10, 1885.

Ligation of Primitive Carotid Artery.—Dr. Arpal, of Saragossa, described the effect of a suicidal pistol wound behind the right ear, with a furious hemorrhage, necessitating the ligation of the primitive carotid artery of the same side. This was done, an antiseptic dressing applied, and thirty-one days after the operation he was discharged cured, and has for two months pursued his vocation without inconvenience.—*Gaz. Hebdom. des Sciences Méd.*, Dec. 12, 1885.

Extirpation of the Spleen in Leukæmia.—Rydygier records the removal of a six pound spleen from

a leukæmic woman, aged thirty-one, who died, on the following morning, of hemorrhage from the abdominal wound. The ligatures on the main bloodvessels involved held perfectly, and Rydygier ascribes the secondary hemorrhage to imperfect coagulation dependent upon the condition of the blood. This case brings the total number of deaths from this operation up to eighteen, of which sixteen were from hemorrhage and two from shock. Thus far, the only successful case of splenic extirpation for leukæmia is that performed by Franzolini.—*Centralb. f. d. med. Wiss.*, Nov. 21, 1885.

Tartar Emetic in Phthisis.—Bucquon records the successful employment of tartar emetic in many cases of phthisis. He administers the drug at first in the aggregate daily dose of one and a half to two grains, the patient at the same time not being allowed to use fluid, in order that vomiting may be avoided. When tolerance is established, the aggregate daily dose is reduced to three-quarters of a grain, which, he states, to reduce fever, cough, and expectoration, increase the appetite, and induce a tendency to constipation. The only contra-indications for the treatment described, are severe diarrhœa and persistent intestinal ulceration.—*Centralb. f. klin. Med.*, Nov. 28, 1885.

Injections of Charcoal Water in Typhoid Fever.—As a method of partially disinfecting the intestinal contents of typhoid patients, and thereby not only rendering the stools inoffensive but also diminishing the danger of auto-infection, Duval strongly recommends the use of injections of charcoal water. A soupspoonful of poplar charcoal is well mixed with each injection, which is repeated from two to three times daily. A case is cited in which the use of this absorbent rendered the intensely repulsive dejecta absolutely inodorous, and in which great meteorism was immediately diminished and finally disappeared.—*L'Abeille Médicale*, Dec. 21, 1885.

The Ferment of Sputa.—The observations of Filehne, who found in the sputa of pulmonary gangrene a ferment capable of dissolving albumen and elastin, have been extended by Escherich, with the following results:

The glycerine extract of the sputa of pulmonary gangrene dissolved albumen rapidly in alkaline solution, but was inactive in acid media. Serous, muco-serous, and muco-purulent sputa of bronchitic origin, were practically inactive. The sputa of phthisis gave positive results in the fifteen cases in which it was used, though its proteolytic power was somewhat less than that manifested by the sputa of gangrene of the lung. The action of bacteria as a digestive agent was excluded by control experiments.—*Centralb. f. klin. Med.*, Nov. 28, 1885.

New Antiseptic Dressing for Use in the Field.—Desquin has recommended a very compact, simple, and cheap antiseptic dressing for use in the battlefield. It consists of filter-paper, sterilized by a prolonged heat of 248° F., which is then immersed in any desired antiseptic solution, and slowly dried. Seven or eight layers are applied to the wound, covered with gutta-percha, and held in place by a few turns of roller-bandage.—*Revue de Thérapeutique*, December 15, 1885.

Passage of Pathogenic Microbes from Mother to Fœtus, and in the Milk.—Kubassow (*Wratch*, 1885, Nos. 31, 32, and 36), after passing in review the observations of Chamberlain, who proved the passage of microbes from mother to fœtus in chicken cholera, publishes an important original investigation from the laboratory of Pasteur.

He has shown that in pigs, malignant œdema rouget (a disease of swine), and tuberculosis, the microbes concerned pass to the fœtus, a transit which he ascribes to direct communication between the vessels of the fœtal and maternal placentæ (?). In the so-called Siberian pest, rouget, and tuberculosis, the bacilli pass to the milk, where they are to be found up to the death of the animal or the cessation of the secretion. In the absence of any wound, especially of the alimentary tract, the sucklings are apparently uninfected by such milk, even up to the death of the mother. Sows affected with tuberculosis or rouget did not become pregnant.—*Centralb. f. Gynäkologie*, Dec. 5, 1885.

Cocaine in the Treatment of Diseases of the Nose, Larynx, and Pharynx.—Schnitzler records one hundred cases in which he has employed cocaine in the treatment of diseases of the upper air-passages. He regards its use as satisfactory in operations upon the tonsils, also in hyperæsthesia of the pharynx, but as not especially advantageous in acute pharyngitis. While praising the application of the drug in operations upon the larynx, he regards its use as superfluous in laryngoscopic and rhinoscopic examinations. In irritative cough, in acute and chronic laryngeal catarrh, and in laryngeal tuberculosis, the symptoms were favorably affected by the treatment in question.

He regards the presence of glycerine as advantageous, and recommends the following formula as adapted for general use:

Cocaine muriate	2-5 parts.
Glycerine	20 "
Water	80 "

When a long-continued anæsthetic effect is desired, the following formula is recommended:

Cocaine muriate	2-5 parts.
Morphia	2 "
Glycerine, Water,	of each 50 "

For insufflation:

Cocaine muriate	2-5 parts.
Lead acetate	20 "
White sugar	80 "

Or:

Cocaine muriate	2-5 parts.
Bismuth subnitrate, White sugar	of each 50 "

For nasal injections and for inhalations a solution of cocaine of the strength of one part in five hundred is employed.—*Centralblatt f. Chirurgie*, Dec. 19, 1885.

The Respective Toxicity of the Organic and Saline Constituents of the Urine.—After passing in review the observations of Felz and Ritter, who regarded the symptoms of experimentally induced uræmia as due to the inorganic urinary constituents, especially the salts of potash, and also those of Bouchard, who

affirmed the toxicity of the organic elements, LÉPINE and AUBERT record the results of their experiments in this regard.

In each of their experiments two dogs of the same race and of equal weight were used. Into the femoral vein of one of them was injected a given quantity of normal urine, while into the same vein of the other dog there was injected a watery extract of the *ash* of the same urine, diluted to its previous volume. The results showed that for each kilogramme of the dog's weight 60 c.cm. of normal urine were required to induce death, while 65 c.cm. of the aqueous extract of the urinary ash per kilogramme of body-weight were needed to produce death. The toxicity of the normal urine, therefore, exceeds but slightly that of its inorganic constituents. The case was different when the urine of fever patients was used. Here 25 c.cm. per kilogramme were sufficient to cause death, while of the solution of its inorganic constituents, prepared as before, 40 c.cm were found to be the minimum lethal dose. It is evident, therefore, that the urine of fever possesses nearly twice the toxicity accounted for by its inorganic constituents. The symptoms in the two groups of cases also were different, for while the urine of fever caused clonic convulsions, the normal urine always produced death by heart failure.—*Centralbl. f. klin. Med.*, December 19, 1885.

MITRAL STENOSIS AND LEAD POISONING.—The influence of saturnine intoxication on the various tissues of the body is a subject that merits even further attention than it has yet received. Neurologists are acquainted with a variety of nervous diseases clearly the outcome of lead poisoning; and Dr. Gowers has, we believe, asserted that no symptom of nervous disease may not be due to lead. Vascular lesions have long been known to be caused by the prolonged action of this metal; and now M. Duroziez suggests that a limited lesion of the heart—mitral stenosis—may in a certain number of cases be due to the same far-reaching cause. The suggestion arises from his having observed several cases of mitral obstruction in house-painters, compositors, and certain polishers.—*Lancet*, January 2, 1886.

THE ACID REACTION OF GONORRHŒAL PUS.—MARTINEAU maintains that the pus of gonorrhœa always presents an acid reaction, and that this characteristic affords a valuable diagnostic sign. Thus, while the local secretions in simple vaginitis and vulvitis are alkaline, these diseases, when of gonorrhœal origin, present an acid secretion. The same condition obtains in urethritis in the male, and also in the relatively very rare condition of gonorrhœal metritis, which, according to Martineau, may be diagnosticated by the introduction of litmus paper into the uterine cavity.—*Centralb. f. Gynecologie*, December 19, 1885.

LACERATION OF THE OS AND CERVIX UTERI, AND THE OPERATION OF TRACHELORRHAPHY.—DR. GRAILY HEWITT, in a clinical lecture which is published in the *British Medical Journal* for Jan. 2, 1886, summarizes his views as to the indications for the performance of trachelorrhaphy as follows:

The operation is indicated by the presence of a chronic extensive eversion of the cervical lining, by the presence of considerable hypertrophy of the os, the result of laceration, and the more so if hypertrophy and eversion be conjoined; by the presence of chronic severe local pain, evidently traceable to the irritation of a raw surface less extensive in amount, or traceable to cicatricial hardening at the bottom of the fissure; by the association of marked laceration with a troublesome displacement of the body of the uterus; by the presence of repeated miscarriages in a chronic case; by the presence of a severe recent laceration, even in cases where no severe symptoms have had time to develop themselves, with the view of preventing (1) cellulitis; (2) the occurrence of cancer; (3) the supervention of symptoms generally; lastly, by the presence of general severe prostration, inability for locomotion, etc., obviously traceable to laceration.

The operation itself is not, in most cases, a difficult one, but, in some cases, it is so. In assisting to hold the cervix down, he has found the large tenaculum hooked forceps, depicted in the last edition of his work on *Diseases of Women*, made by Mayer and Meltzer, of very great utility. Sometimes the nodular hypertrophy renders coaptation of the edges, after paring them, not easy, owing to one side of the rent being very short, the other very long. Another difficulty is, in some cases, the excessive hardness of the tissues to be perforated by the needle, which is sometimes so great that much force is required to penetrate the tissues. The needles need to be very strong for such cases. He has found No. 6 silver wire most suitable for sutures, and has generally removed them in not less than ten days. Probably it would be better to leave them a week or two longer, in cases where the patient is very weak and nutritive action feeble. The importance of a preparatory treatment before proceeding to the operation is emphasized.

TWO CASES OF SEVERE ANÆMIA CURED BY SUBCUTANEOUS INJECTIONS OF BLOOD.—Two severe cases of anæmia have been treated by SILBERMANN by v. Ziemssen's method. One case was that of a very anæmic boy eight years of age, who suffered with somnolency and frequent fainting. With great caution twenty c.cm. of defibrinated blood were injected under the skin of each thigh, which procedure was repeated nine days thereafter. Improvement dated from the first injection, and was constant for ten weeks, when patient was discharged cured. In the second case a girl of eleven years, who had presented symptoms of the most intense anæmia, resulting from intestinal hemorrhage, received twenty-five c.cm. of blood in the subcutaneous connective tissue of each thigh. Her gain in weight was steady from this time and amounted to nearly eight pounds in six weeks.—*Centralbl. f. klin. med.*, Dec. 5, 1885.

LEFT VENTRICLE PERFORATED BY A GASTRIC ULCER.—At a recent meeting of the Academy of Medicine in Ireland, a very remarkable specimen was exhibited by DR. J. MAGEE FINNY. It was an example of an ulcer of the stomach, which perforated the left ventricle of the heart and caused death by hemorrhage. The subject of this interesting example was a lad aged seventeen, of a somewhat strumous constitution, who was admitted into hospital under Dr. Finny's care about two months since, and died early in December. During his stay in the hospital, pain was complained of about the cardiac region, and pericarditis was diagnosed, but,

strange to relate, there were no symptoms of any gastric irritation, neither pain nor vomiting. On the day death occurred the patient passed blood by stool, and a post-mortem examination showed that the stomach was entirely filled with blood.—*Lancet*, December 26, 1885.

Trephining for Epilepsy.—At a late meeting of the Northumberland and Durham Medical Society, Dr. Oliver showed a boy who had been trephined in the right parietal region for supposed traumatic epilepsy. The fits had developed after a blow on the head; and although, on admission to the Newcastle-on-Tyne Infirmary, no injury could be detected, it was decided to trephine, as the epileptic phenomena were unilateral. The opening was made an inch above and behind the right ear, and a quantity of effused serum and lymph removed. The wound healed well, but the fits continued, though with less severity and frequency.—*British Medical Journal*, January 2, 1886.

Alopecia Areata and Bacterium Decalvans.—V. Sehle has described a micrococcus found in the hair roots in alopecia areata, and has succeeded in obtaining a pure culture of the organism and also in producing the characteristic local baldness in certain animals by its inoculation. It is probable that the micrococcus of v. Sehle is identical with the organism described by George Thinn in 1881.—*Centralb. f. klin. Med.*, December 5, 1885.

Brown-Séquard's Mixture for Epilepsy.—

Iodide of potassium	8 parts.
Bromide of potassium . . .	8 "
Bromide of ammonium . . .	4 "
Bicarbonate of potassium . . .	5 "
Infusion of calumba . . .	360 "

Dissolve. A teaspoonful before each of the three principal meals, and three dessertspoonfuls on going to bed. The solution should be given diluted in cases of idiopathic epilepsy.

If the pulse of the patient be feeble, the potassium bicarbonate is replaced by ammonium carbonate, while for the 360 parts of infusion of calumba there are substituted 90 parts tincture of calumba and 270 parts of distilled water.—*L'Union Médicale*, December 31, 1885.

Muscle Tonus.—Mommsen has repeated, with certain modifications, the experiments of Brondgeest, which showed that in a suspended decapitated frog, the leg in which the sciatic nerve was cut, hung lower than did the other leg—in other words, possessed less tone. Mommsen concludes that muscle tonus is a muscle reflex in the broadest sense of the term, and that its stimulus is a mechanical one, namely, the constant stretching of the muscle and its adnexa, as conditioned by its anatomical attachments. The reflex is not exclusively dependent upon the stimulation of cutaneous sensory nerves, for flaying, section of the posterior spinal roots, and anæsthesia of the skin (by carbolic acid) do not destroy the tonus.—*Centralb. f. klin. Med.*, December 5, 1885.

Emulsifying Power of Human Pancreatic Juice.—Ch. Robin obtained from each of two executed criminals, at respectively 8 and 12 hours after death, a pancreatic extract of marked emulsifying power. Emulsions made with these extracts remained during one month entirely without change and without the appearance of decomposition. The emulsion produced by the bile in these cases was not permanent.—*Centralb. f. d. med. Wissenschaft*, December 26, 1885.

Trephining for Traumatic Epilepsy.—Mr. Whitehead presented at a recent meeting of the Manchester Medical Society a man, aged twenty-eight, whom he had successfully trephined for traumatic epilepsy. The patient fell down a quarry, a distance of thirty feet, in May, 1884, and received a compound fracture of the skull, for which he was treated for seven weeks in the Bradford Infirmary. Since his discharge, he had suffered from constant headache, and for seven weeks preceeding his admission into the Manchester Infirmary on September 29, 1885, he suffered from epileptic fits, sometimes amounting to six during twenty-four hours, and never free from headache and depression during the intervals. On October 2d, he was trephined immediately outside the area of the fracture. Nothing abnormal was observed through the aperture; nevertheless, the man had ever since, with the exception of one attack, been free from fits, and his headache and depression had disappeared. Mr. Whitehead attributed the improvement rather to reflex influences than to any direct result of the operation. He promised to report the further progress of the case.—*British Med. Journal*, January 2, 1886.

Further Researches on Malaria.—In the current number of the *Fortschritte der Medicin* there appears a translation from the Italian of some further researches on malaria by Prof. Marchiafava and Dr. Celli. The chief results so far obtained are thus summed up: 1. In the blood of individuals suffering from malaria there may be found in the interior of the red blood-disks minute organisms composed of homogeneous protoplasmic particles which are endowed with lively amœboid movements, and can be distinctly stained. These organisms are only found in the blood in cases of malaria, and are termed plasmodes or hæmoplasmodes of malaria. 2. In the interior of these units reddish or black pigment may be detected, but it is not an essential constituent, being merely derived from the hæmoglobin of the red disk. According as this pigmentation does or does not take place, we have or have not melanæmia. 3. The hæmoplasmodes may be transformed by a process of fission into a group of granules which do not possess amœboid movements. This fission may occur in the pigmented as well as in the non-pigmented plasmodes, and it is most probable that this is the ordinary mode of multiplication within the human organism. Infection may occur as the result of the intravenous injection of malarial blood, as is shown not only by clinical experience, but also by the fact that in the blood of the receiver the hæmoplasmodes may be discovered. The units further increase as infection progresses, and diminish, until they disappear, as infection ceases, whether naturally or under specific treatment. The authors, in determining some of the latter points, made experiments on a man aged forty-three, who was suffering from paralysis agitans, but who had never had any malarial fever. The blood was taken from a malarial subject during his apyrexial period, and the febrile movement commenced in the receiver the same evening.—*Lancet*, January 2, 1886.

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INFANTILE PARALYSIS OF CEREBRAL ORIGIN.

PARALYSIS in children, even when unilateral, is usually regarded as a spinal affection, but there are, apparently, certain cases of cerebral origin in which the motor area of the gray cortex is involved, resulting in the production of paralysis, more or less complete, on the opposite side of the body. STRÜMPELL describes this form under the term polioencephalitis acuta, and from his account in the *Deutsche medicinische Wochenschrift*, x. 44, and from the more recent paper of RANKE, in the *Jahrbuch für Kinderheilkunde*, xxiv. 1 and 2, we can gather a tolerably accurate picture of the disease.

Strümpell has had twenty-four cases, the youngest in an infant of six weeks, the oldest in a child of six years. In a majority of the cases no special cause was apparent, but one followed measles, and another scarlet fever. As in poliomyelitis, healthy children seem most frequently attacked. There is usually an initial stage of fever, with vomiting, convulsions, and sometimes loss of consciousness. Occasionally the attack comes on suddenly without any premonitory symptoms. After two or three days the parents notice that the child has lost the power of the muscles on one side of the body. There is more often total paralysis of the arm than of the leg; and the facial paralysis is seldom extensive, but is confined to the lower region, and is of slight duration. There may be monoplegia, either brachio-facial or crural. In some cases there is no definite paralysis, but rather an ataxia, with great clumsiness in using the affected members. The muscles do not undergo a degenerative atrophy, nor do they present the reaction of degeneration. The normal tension may be maintained, and the flaccid condition of poliomyelitis is not observed. The reflexes are usually increased. Sensation on the affected side may be reduced, but it is more commonly normal. Ultimately, as a result of the cerebral irritation, there may be epileptic attacks, hemichorea, athetosis, contractures, and, if the affection is in the left hemisphere, disturbances of speech.

Strümpell draws a parallel between the cerebral and the spinal affection. In both, healthy children are attacked after an initial period of fever, and in both the gray matter is the seat of the disease, the anterior horns of the cord being affected in poliomyelitis, and the motor area of the cerebral cortex in polioencephalitis.

In the later stages of the disease there is atrophy of the affected convolutions, and the shrinkage may be so great as to induce the porencephalous condition described by Kundrat. The precise nature of the changes in the early stage has not yet been determined.

Ranke records nine cases which correspond, more or less closely, with Strümpell's description; six became hemiplegic, and three monoplegic. In the former there were irregular choreic movements in the affected limbs. Unlike the condition in poliomyelitis, the tendon reflexes were retained. The electrical conditions of nerve and muscles were not diminished, and there was no reaction of degeneration.

This condition of polioencephalitis acuta described by Strümpell would seem, in the majority of instances, at least, to be simply the early stage of the affection known as spastic hemiplegia of infants, so well observed by James Ross, Charcot, and others. In these cases the onset of the disease is in early life, from the age of two months to four or five years. As described by Ross in *Brain*, vol. v., the attacks come on with convulsions and unconsciousness, often preceded by a brief initial illness, and when the child recovers consciousness, the hemiplegia is noticed. Subsequently contractures become established in the affected limbs, which are often the seat of athetosis and choreic movements. Later on, at the tenth or twelfth year, epileptic attacks supervene, and there is failure of the intellectual faculties. The lesion is essentially a diffuse sclerosis, with retraction in the motor area of one cortex, and this is sometimes so marked that the cases have been described as unilateral atrophy of the brain. Among possible causes of the primary lesion, Ross suggested a local encephalitis.

The subject of spastic hemiplegia is exhaustively considered in a recent number of Virchow's *Archiv*, Bd. cii., by BERNHARDT, who records eighteen cases, occurring in early childhood. Healthy children were usually attacked, but in three or four instances the disease came on during convalescence from in-

fectious diseases. As in Strümpell's cases, convulsions and loss of consciousness were the early symptoms, and then hemiplegia, more or less complete, followed, in time, by a spastic condition, choreiform movements, and epileptic attacks.

Bernhardt doubts whether the initial lesion in all instances is the same; but, however that may be, he holds that we can recognize an important clinical group of cases, the primary symptoms of which are characterized by convulsions, loss of consciousness, and hemiplegia, and the secondary by contractures, hemichorea, athetosis, psychical anomalies, and epileptic seizures. The anatomical condition is an atrophic sclerosis, more or less extensive, of the motor region of one hemisphere, and it is very probable that a considerable proportion of these cases have their origin in the polioencephalitis acuta, so well described by Strümpell.

The post-mortem appearances of the acute stage, which are needed to complete the evidence, will doubtless soon be forthcoming.

STRAW IN STREET CARS.

EVERY winter the complaint is renewed against the use of straw or hay upon the floors of the street passenger railway cars. Observation and experience have shown the practice to be uncleanly and injurious to health. It would seem that clean, fresh straw or hay, frequently renewed each day, with a sweeping of the floor before such renewal, would conduce to the comfort of the travelling public during the winter season: but such careful regulation is the rare exception, not the rule. A mass of straw is made to do service for the entire day, or still longer, its continued use permitting of its defilement by the tracking of dirt from the streets, by the expectorations from the lungs, by saliva often stained with tobacco, and by the absorption of exhalations from the body and lungs, especially if the straw be damp. A portion of the straw is pulverized under the feet of hundreds of passengers, and gives rise to a fine dust of a heterogeneous composition, which is not only an irritant to the air passages, but may also be injurious according to the nature of the impurities which it contains. In brief, the straw becomes the receptacle for all kinds of impurities which are imparted to the confined atmosphere of the cars, rendering its condition noxious. The custom is a pernicious one, and should be interdicted.

The Board of Health of Philadelphia has condemned the practice as contravening the laws of health, and, in the absence of specific law on the subject, has requested its discontinuance. But as the street railway corporations are a law unto themselves, the request has been ignored. A movement is now on foot in City Councils to compel, by ordinance, the abandonment of the practice, and this movement is endorsed by the health board. Such an ordinance should receive the hearty support of the representatives of the people.

It is obligatory upon the street passenger railway companies to keep their cars always in the cleanest possible condition; and this requirement is especially important in the winter season, when free ventilation is cut off. Cocoa mats upon the car floors, changed frequently during the day, will answer the purposes of comfort and cleanliness. Their cleansing by scrubbing under a stream of water, and drying in a hot-air chamber, would be a matter of expenditure of trifling consideration compared with the advantages which would inure to the patrons of the companies from a condition of cleanliness constantly maintained. A word to the wise is sufficient.

HÆMOGLOBINURIA.

EVIDENCE is accumulating in favor of the view that hæmoglobinuria is a blood disease, and not primarily an affection of the kidneys. Certain toxic agents, of which malarial poison is the most clearly recognized, act upon the blood in such a way as to cause a separation of the hæmoglobin, which is then excreted, as a foreign body, with the urine, either alone or with the remnants of the disintegrated corpuscles. Many of the cases of the so-called paroxysmal hæmaturia are of this nature.

Experimental researches, particularly those of Afanassiew, in Cohnheim's laboratory, have clearly shown that various substances, such as glycerine, pyrogallic acid, and foreign blood, introduced into the circulation will cause destruction of the corpuscles. The dissolved hæmoglobin is excreted by the kidneys, and, if the dose of the poison is large, and the destruction of the corpuscles very great, jaundice may be produced as well as the hæmaturia. Nephritis of an intense character is an almost invariable consequence.

In cases occurring spontaneously in man and animals, evidence of blood destruction is, of course, afforded by the presence of the coloring matter in the urine, but there are surprisingly few observations upon the state of the blood itself during the attack. Some writers, indeed, speak of a granular débris in the plasma and a distorted state of the corpuscles, but we know of no observation similar to the one recorded by HEINEMANN, of Vera Cruz, in the current number of Virchow's *Archiv*, cii. 3; The case was one of hæmaturia in intermittent fever, occurring in a lad, aged fifteen, who when first seen had had quotidian ague for three days. Ever since a previous attack, three months before, the urine had been dark in color. During a paroxysm, while the temperature was 40.5° C., blood was drawn with a cupping glass and carefully examined. The red corpuscles had uniformly lost their coloring matter, which was in

solution in the plasma, so that the cells were represented by pale, colorless disks floating in a tinged medium. Scarcely a normal corpuscle could be found. After two days, the condition had so far improved that the corpuscles again presented a normal appearance.

Dr. Heinemann writes like a careful, well-trained physician, and the editorial supervision of the *Archiv für Pathologische Anatomie* is notoriously stringent, otherwise we should be inclined to doubt the accuracy of an observation which necessitates the conclusion that the oxidizing processes of the body may be carried on by hæmoglobin in a state of solution in the blood plasma. And further, as we cannot suppose that corpuscles which have once lost their coloring matter can ever be restored to the normal state, we must infer, in this case, a complete restitution of the cells within forty-eight hours, which seems scarcely credible. The observation, however, is of interest, and may serve to stimulate others who have cases of this kind to make a careful examination of the blood with a view of determining whether a solution of the coloring matter in the plasma, hæmoglobinæmia, always precedes the hæmoglobinuria.

There is a common affection of the horse, variously known as azoturia and acute nephritis, but which is probably, as Bollinger suggested, a toxic hæmoglobinuria, a careful study of which will, we feel sure, throw light upon the pathology of the subject in question. An animal, after standing for a day or two in the stable, is taken out for work or exercise, and within a short time is seized with weakness, particularly of the hind legs, breaks into a profuse sweat, and passes bloody urine. Death may take place within an hour, but, more commonly, the attack is prolonged for several days and recovery frequently occurs. The post-mortem appearances are largely those of acute nephritis and have been carefully described by A. W. Clement in the *Journal of Comparative Medicine*, October, 1885. There are also parenchymatous changes in the liver and in the muscles, particularly those of the lumbar region. The sudden onset, in apparently healthy animals, the rapidity with which the fatal termination may occur, the constant presence of hæmoglobin, with or without corpuscles, in the urine, together with the renal and other changes, make up a remarkable group and point to some quickly acting toxic agent as the cause of the disease. In certain anatomical features it presents a striking resemblance to many of the experimental cases described by Afanassiew, and a fuller knowledge of its pathology may lead to a better understanding of some of the examples of næmoglobinuria in man which are at present so puzzling.

ANOTHER EXPRESSION OF PROFESSIONAL SENTIMENT.

THE profession of Philadelphia, in the course of their loyal duty to the American Medical Association, have formally and most emphatically placed the seal of condemnation upon the men who have been giving support to the dissensions which were aroused at New Orleans, and which are tending to the destruction of the Association.

At the annual meeting of the Philadelphia County Medical Society, held last week, unusual interest centred around the election of delegates to the Association, and two tickets were placed in the field. One was framed in the interests of the supporters of the action of the Association at New Orleans in reference to the organization of the International Medical Congress, and included the names of all the men in Philadelphia who are prominently identified with this movement. The other was made up of nominees who are opposed to this action and the dissensions it has engendered in the profession. Both tickets were duly mailed in advance of the meeting to every member of the Society, so as to secure an absolutely free and fair, as well as full expression of opinion by the profession of Philadelphia. The latter ticket was elected by the overwhelming majority of more than four-fifths (169 to 36), at the largest meeting of the Society ever held.

It is the solemn duty of the New Committee of the Association charged with the arrangements for the meeting of the International Medical Congress at Washington, to ponder well, before it is too late, the meaning of this, and of the numerous other expressions of dissent which have reached them from all sides. They must know that the profession of Philadelphia, New York, Boston, Baltimore, Washington, and Cincinnati are practically united in disapproval of the action which brought the New Committee into existence, that serious differences of opinion, to say the least, exist in all the other principal cities of the United States, and that the sympathies of the profession of Canada and of Europe are not with them. They must recognize that to persist in their present course is to impair the good name of the American medical profession, and to imperil the vital interests of the American Medical Association.

One month ago THE MEDICAL NEWS, in an earnest plea for the restoration of harmony in the profession, expressed the hope that the Committee of the Association would use their influence to this end, and by their action show that in view of the present strained relations—which, if maintained, mean failure to the Congress and disaster to the Association—they were ready to sink personal considerations for the general good. We renew this plea to-day in the name of the large mass of the profession of the United States, who earnestly demand the restoration of harmony

and the preservation of the integrity of the American Medical Association. A crushing responsibility will rest upon the Committee if they fail to meet this demand.

REVIEWS.

A Complete Pronouncing Medical Dictionary. By Joseph Thomas, M.D., LL.D. 8vo. pp. 844. Philadelphia: The J. B. Lippincott Company.

A remarkably handsome book, with good paper, large type, and not unwieldy bulk. The system of pronunciation is that which characterizes other works by the same author, well and elaborately explained in the preface. Dr. Thomas also explains that he has thought it well to include many botanical terms on account of the close alliance existing between medicine and botany; but we were not prepared for the immense number of such terms with which each page bristles. Of course, where so much attention is devoted to the language of a collateral science, there is a lack of space for distinctively medical terms, always numerous and ever-growing, and the absence of very many of which terms detracts most seriously from the value of the book as a medical dictionary.

We will try to make clear our meaning by facts culled from a single page. We looked for pelyometer, an old term for pelvimeter, but Dr. Thomas has either not heard of it or thinks it unworthy of mention. The same thing is true of the synonymous word pelycometer. We look further, but alas! in vain, for that choice term pelycochirometresis. Now, it may be said, such terms are obsolete, and are barbarous; but, if the student of medicine comes across one of them, he will very naturally and properly look for an explanation of them in the pages of a medical dictionary. We take it that one of the important functions of a dictionary is to give information concerning words but rarely used, and we are most decidedly of the opinion that the medical student is more likely to require information about such old polysyllables than he is to be told all about the familiar family of plants known as Pelargoniums. The latter may supply his bouquets during his medical juvenescence, and may help to adorn him at his graduation; but, after that, if he practises obstetrics, he will find pelycochirometresis of far more importance to him than the whole family of Geraniums, even if one of these has been experimented with in medicine.

How complete the work is as a botanical dictionary we know not, that is beyond our province; but, should it possess the same defects in that direction as we have referred to from a medical standpoint, it will not be highly valued by students of botany. But it makes no pretensions in that direction, and any criticism at the hands of botanists would, therefore, be out of place.

A very noticeable article, and one which it would be unpardonable to pass by, is from the pen of Dr. Morris Longstreth, on Pathogenesis. It is thoroughly and admirably done, representing very fully the present state of our knowledge upon this important topic. We deem it as particularly incumbent upon us to mention this exhaustive paper, that we may help to disinter it from its surroundings, it being of a scope and character altogether unusual for any dictionary article, and different from anything we have noticed in its environment.

We have, perhaps, now said sufficient to give our readers an idea of the character of this *complete* dictionary. If there is anything we dislike, it is the utterance of harsh criticisms. If there is anything we like, it is to say smooth and pleasant things. We shall, therefore, withhold our hand, and content ourselves by remarking that we should have had even less to say had it not been for the extraordinary statement of the title-page, that the book is a *complete dictionary*. A dictionary it may be—indeed, we cannot deny that a dictionary it is; but, to term it a complete one, is to put black for white, and to speak of that which is not, as though it were.

Physicians' Visiting List for 1886. Lindsay & Blakiston, 1886.

This standard physician's note-book, now in the thirty-fifth year of its publication, is admirable both in its practical arrangement and mechanical finish. It is too well and favorably known to require description or praise.

Plumbing Problems; or, Questions, Answers, and Descriptions relating to House Drainage and Plumbing, from the *Sanitary Engineer*. With one hundred and forty-six illustrations. 8vo. pp. xiv. 244. New York: *The Sanitary Engineer*, 1885.

It has been a prominent feature of *The Sanitary Engineer*, a paper published weekly, and devoted to engineering, architecture, construction, and sanitation, to solicit queries on topics connected with the sanitary arrangements of dwellings and buildings generally, which are printed in its pages, with appropriate comments by persons specially fitted to discuss the various problems involved. The present volume is a selection from its pages of questions and comments illustrative of the common defects in house-drainage, plumbing, etc., as well as of the methods of their correction.

The illustrative cases relate to a great variety of subjects, and are included under the general topics of water supply, sewerage, sewage disposal, ventilation, heating, lighting, house-drainage, and plumbing. Appended to the book is a form of plumbing specification for an isolated country-house, and also the text of the plumbing laws and regulations in force in New York, Brooklyn, and Boston, in May, 1885, which will be most serviceable, as models, to those cities and towns which are contemplating the introduction of such regulations.

The book reminds one of Mr. Pridgin Teale's *Dangers to Health, or Pictorial Guide to Sanitary Defects;* but it is very much more comprehensive. Illustrations are freely used, but they are not the exclusive, though a very prominent, feature of the book. The drawings in many cases so plainly indicate at a glance the idea intended to be conveyed, that comment is unnecessary.

Most of the inquiries contained in the book have been suggested by actual experience, and have a bearing on practical questions of frequent recurrence. The answers and comments furnish a fund of information, pointedly detailed and intensely practical. As this matter is scattered through the pages of the different volumes of *The Sanitary Engineer*, it is available only to the few, and then only after diligent search. The selection of the

best material and its compilation in the present volume, is a thoughtful and most useful enterprise, which ought to be appreciated by the householder as well as by the artisan and professional sanitary engineer.

The book is well printed on good paper, is profusely illustrated, and as it is supplied with a good index and a full table of contents, it will be exceedingly useful as a work of reference, and will aid in solving many a troublesome problem.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, December 22, 1885.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

DR. C. K. BRIDDON presented a patient with the following history of

PENETRATING WOUND OF RECTUM AND BLADDER; RECTO-VESICAL FISTULA, COMPLICATED WITH STONE; OPERATION; CURE.

J. Van Tassel, aged twenty-two years, native of United States, single, laborer. Entered Presbyterian Hospital in the city of New York, service of Dr. Briddon, Nov. 4, 1885.

Two years before admission, while driving, he fell on one of the "stakes" of a "bark rigging." The stake was blunt, about one inch in diameter, and six inches in length. It entered just behind the anus, penetrating nearly its whole length. When he raised himself from the stake there was a gush of urine, but very little blood. He did not suffer much pain, and went on with his team until exhausted, when he was taken home in a sleigh. During the following night, gas and feces were passed by the urethra. The external wound healed in four or five weeks, but the other symptoms continued. At times he would pass all his urine through the natural outlet, but nearly always the larger portion of it came by the rectum. Seven months before admission he began to suffer more pain in the perineum. Occasionally the stream would suddenly cease, and the suffering was aggravated by locomotion. On admission the patient's general condition was fair; he complained mainly of difficulty in urination; he had evening exacerbations of temperature, that were not influenced by quinine. A No. 27 French sound introduced into the bladder, came in contact with a stone of considerable size. Examination by the rectum found a fistulous communication with the bladder, situate a little to the left of the median line, and two inches and a half above the verge of the anus. He passed about sixty ounces of urine daily, the largest amount passed by the urethra in twenty-four hours being four ounces.

Operation Nov. 14, 1885, 3 P.M. Patient etherized and on his back. A catheter communicating with an irrigator was introduced into the bladder, and the cavity was thoroughly washed out with a warm solution of boracic acid. Its exit from the rectum was facilitated by the introduction of an anal speculum. The catheter was then withdrawn, and a staff was introduced and placed in contact with the stone. The patient was then placed in the knee-elbow position, with the pelvis a little higher than the shoulders, and the thighs secured in a position of abduction by an interfemoral crutch; the posterior wall of the anal aperture was transfixed by stout silk loops; and, whilst the parts were made tense by these, the posterior wall of the rectum was split in the median line as high as the point of the coccyx, aided by the introduction of a large Sims speculum and lateral retractors. It was possible to make a satisfactory digital and ocular exploration of the fistulous communication between the bladder and the rectum. It was distant two and a half inches from the anus. It admitted the introduction of the index finger, which could easily estimate the relations of the parts. The finger appeared first to pass through a circular aperture in the resisting wall of the rectum, then into a short oblique canal of less resistance, and probably not half an inch in length, and then through a second circular constriction which was apparently situate in the bladder wall, and then it came in contact with the stone. It had been determined to secure efficient drainage from the bladder by removing the stone through a median perineal opening, which was easily accomplished, removing an oval calculus weighing nine drachms. The fistulous opening was now once more thoroughly exposed; its margins were denuded of mucous membrane; and its sides were approximated by the introduction of ten catgut sutures; the incision made in the posterior wall of the gut was closed by a line of suture through the lining membrane, a line of buried, and a continuous suture through the skin; large drainage tubes were introduced into the bladder and rectum, and securely fixed in position. In the after-treatment milk was excluded, and he was restricted to the use of Leube's beef solution.

Nov. 24. The tube was removed from the rectum, the wound in the posterior wall of which was not entirely healed.

27th. Tube was removed from perineal incision. There was no escape of urine from the rectum after the operation, and examinations made November 25, and Dec. 3 and 11, found the fistulous communication completely closed, and the patient was dismissed cured.

DR. ALFRED C. POST referred to a case, occurring a number of years ago, in which the patient attempted to jump over a broomstick, and the end of the stick penetrating the rectum and passed through into the bladder; he had symptoms of peritonitis, it was said, at the time of the accident. In the following year, when the patient was brought to him, he was suffering from difficulty and pain in passing his urine. On sounding him Dr. Post found a vesical calculus. When the injury was received a circular piece of the seat of the pantaloons was found to be absent. Having ascertained the existence of the calculus, he treated the case by lithotripsy, and on three or four occasions the stone was crushed and fragments passed; it was before the time of Bigelow's apparatus; and at the last crushing, while attempting to withdraw the instrument, he found that an object of considerable size was held in the grasp of the lithotrite, and was removed with some difficulty. On examination, it was found to be the piece of pantaloons which was carried into the bladder at the time of the accident, where it had become the nucleus of the calculus; there was no fistulous opening. The patient recovered perfectly.

DR. GEORGE A. PETERS said that some years ago Dr. Weir had a case somewhat similar to that mentioned by Dr. Post. It was one in which the bladder had been penetrated by a bullet. Dr. Weir crushed the stone, and had the same experience while crushing. He withdrew the body with the lithotrite, and it proved to be a piece of the soldier's pantaloons, which had become the nucleus of the stone.

DR. L. A. STIMSON said that in Dr. Briddon's case the exposure of the fistula through the divided anus was extremely satisfactory; it was almost outside of the body, and its surfaces could be very accurately freshened and approximated.

DR. T. M. MARKOE, speaking of cases in which nuclei of calculi had been forced into the bladder, mentioned a case which he saw in consultation with Dr. Livingston, whom he assisted in the median operation of lithotomy. The history was that at the battle of the Wilderness the patient received a gunshot wound in the right groin involving the bladder, from which he had recovered with a urinary fistula. The fistula gave him comparatively little trouble; but symptoms of stone in the bladder gradually supervened, and several years afterward Dr. Livingston performed the operation mentioned. On removing the calculus and dividing it, the nucleus was found to be a piece of the pubic bone which had been driven into the bladder. Another little piece of bone lying by the side of the large calculus was partially encrusted, but had not formed a stone. They then examined the line of the pubis, and found the depression made by the passage of the ball.

There is another case on record in *The Medical and Surgical History of the War*, that of a patient who was shot through the bladder; symptoms of stone developed, calculus formed, and the nucleus of the calculus was found to consist of a tuft of curled hair, which had been carried in from the pubis.

DR. GEORGE A. PETERS referred to a case in which a hairpin was the nucleus of the calculus, and Dr. Briddon had seen a similar case.

DR. L. A. STIMSON referred to a case in which a piece of the stick used in eating snuff was the nucleus of an oval calculus.

These cases were mentioned to show that the shape of the calculus is not always determined by that of the nucleus.

THE PRESIDENT said the method of exposure of the fistula in Dr. Briddon's case must have been very satisfactory. He imagined that we should see a less number of these cases of urethro-recto-vesical fistulæ now that there are so many calculi crushed. He had met with two cases in which a fistula remained after extracting a large stone. In one case he attempted to drain the bladder over the pubis, after the operation on the fistula, the patient being very young—only four years of age. The drainage went on very well, indeed.

DR. BRIDDON said he had seen two cases of recto-urethral fistula following lithotomy—or, rather, one was ano-urethral, because the opening was close to the verge of the anus. One of them, however, was a real recto-urethral fistula, produced not by the wound, but by the expulsive effort to empty a colon largely distended with casein, the patient having been fed on milk. In the case just reported, Dr. Briddon insisted that the patient should subsist exclusively on Leube's beef solution.

DR. CHARLES MCBURNEY then read a paper entitled

TWO CASES OF OPERATION FOR PYLORIC STENOSIS.

(See page 58.)

DR. BRIDDON remarked that the fact that the secretion of urine was diminished in these cases was interesting. We should naturally suppose that it would be, because the secretion of urine is largely due to absorption from the intestinal walls. In his opinion, the danger would be from septicæmia, because of the inability of the kidneys to secrete urine properly. He thought that the very fact that Dr. McBurney was obliged to use an instrument with which to dilate the stenosed pylorus was evidence that his cases were much further advanced than those reported by Loreta, and of necessity the patients would be in a much worse condition for an operation.

DR. MARKOE said it seemed to him that in estimating the propriety of this operation, one point should be taken into consideration, which had been only slightly touched upon in the paper, namely, that the patient, with proper care, can sometimes be kept alive indefinitely. This certainly is the fact in a number of cases of dilatation of the stomach from stenosis of the pylorus. He has now under his care a gentleman who for fifteen years has used the method of washing out the stomach once or twice a day, and is still in very comfortable health. He has also another patient, who, for about nine years has done the same thing, and has maintained a fair condition of health.

Of course, this method of treatment can be carried out only by systematic attention to the patient, but that it can be done should be taken into consideration in estimating the propriety of this certainly dangerous operation in any given case.

THE PRESIDENT said that Dr. Markoe's remarks concerning supporting the patient were entirely endorsed by his own experience. He had two patients who had adopted the treatment of washing out the stomach, and they did it by means of a flexible tube and a simple funnel. In the case reported he thought that life could have been prolonged for an indefinite length of time, but it was a question of remaining in the hospital forever, or of having something done with a view to radical relief.

DR. MARKOE said that in certain cases he could conceive that the operation was justifiable and might be successful.

DR. F. LANGE presented specimens as follows:

INTESTINAL OBSTRUCTION; ENTEROTOMY; IMPACTED GALLSTONE EXTRACTED; DEATH.

On the 19th of September I saw, in consultation with Dr. Roth, of this city, a Mrs. S., about sixty years of age, who for four days had presented symptoms of intestinal obstruction. Dr. Roth had treated her one year before for protracted abdominal colic, due, as he supposed, to impacted gallstone. From that time on she had often presented dyspeptic symptoms, and an inclination to constipation. Her present trouble had commenced, as I am told, by severe abdominal pain. At first cathartics had been given; on the second day, when vomiting set in, narcotics were administered, and when the appearance of stercoraceous matter in the vomit gave the certainty that a severe obstruction of

the gut must exist, washing the stomach had been resorted to repeatedly, with but transient relief.

When I saw the patient on the evening of the 19th of September, peritonitis already existed. The heart action was commencing to get weak; pulse between 120 and 130; no excessive tympanites, and a moderate ascites could be made out. Though the patient's general condition was not regarded as encouraging for an operation, the latter, as the only imaginable means of saving life, was proposed and consented to. It was done about midnight, from the 19th to 20th of September. The cause of obstruction had to be left in suspense. I was inclined to believe it to be some peritonitic pseudo-ligament.

The patient, after a hypodermic injection of brandy, was given chloroform, and laparotomy by median incision was performed. A considerable quantity of turbid, flocculent serum escaped, and after the omental covering had been lifted, the small intestine presented itself moderately distended, and matted together by peritonitic adhesions of more recent date. It was only after a few seconds of tracing the most distended part of the gut that I palpated a hard lump within it, beyond which the intestines were entirely collapsed. It was obvious that the obstruction was caused by this foreign body, which, after longitudinal incision, escaped easily. The wound in the gut was closed by a double row of Lembert's sutures, and the abdomen closed as quick as possible. The patient had got over the operation comparatively well, the latter having lasted only about three-quarters of an hour. Very soon, however, her pulse became almost imperceptible, and in spite of active stimulation, she died after a few minutes of unconsciousness, and about eight hours after the operation. No autopsy allowed.

The specimen, which you see here sawn across, and of which some of the brittle peripheral layers have been broken, has in its centre a crystalline, round nucleus of cholesterin, about the size of a small walnut, around which, in concentric layers, there is a brownish crust, varying in thickness from one-fourth to one-half centimetre, so about two and a half to three centimetres is the average diameter of the concretion. As you see, in the attempt of sawing across a good deal of the external shell has been broken off. The latter is apparently due to apposition during the sojourn of the gall-stone in the gut.

CORRESPONDENCE.

LOCAL ANÆSTHESIA BY COCAINE.

In THE MEDICAL NEWS of January 2, 1886, Professor Dujardin-Beaumetz speaks of having done the operation for phimosis under cocaine. October 24, 1885, a patient, aged thirty-two, presented himself at my office with congenital phimosis. I applied ten minims of a four per cent. solution of cocaine by a dropper between the prepuce and glans penis. After five minutes I dilated with an Ellinger dilator to the full extent of the instrument. This was painless, but not satisfactory as to extent of aperture. I accordingly made a free incision, and introduced the necessary number of stitches, my friend Dr. Wm. L. Taylor kindly assisting me. At the expiration of a week, finding the incision somewhat contracted, I threw into the prepuce about ten minims of a four per cent. solution of cocaine, and completed the operation thoroughly. Both operations were entirely painless, and, although done in the sitting posture, none of the syncopal symptoms mentioned by Dujardin-Beaumetz, were experienced by the patient.

In neither did I wait longer than five minutes after the application of cocaine before beginning the dilatation or making the incision.

At the present writing, January 4, 1886, the results are satisfactory in every respect.

Yours respectfully,

ANDREW GRAYDON.

1437 N. TWELFTH ST., PHILADELPHIA

ABSORBENT COTTON AS AN ELECTRODE COVERING.

To the Editor of THE MEDICAL NEWS.

SIR: In an article on "Absorbent Cotton as an Electrode Covering," which appeared in a recent number of THE NEWS, Dr. Massey, in his statement that "The resistance offered by pairs of sponge-covered and cotton-covered electrodes may be readily compared," etc., appears to have confounded *specific* resistance (*i. e.*, resistance of sponge or cotton) with *contact* resistance. The experiments of Edison, HerbertTomlinson, Barrett, Heaviside, Bidwell, Naccari, Pagliani, and others, have shown that substances do not materially change their *specific* resistance under pressure. Silvanus P. Thompson found in his experiments with coke-carbon, "subjected to pressure varying from less than one dyne per square centimetre up to twenty-three million times that amount, the resistance did not increase by so much as one per cent. of the whole." On the other hand, according to Sir Wm. Thomson, the resistance of *contact* between two pieces of copper (a good conductor) "may be made to vary in a perfectly continuous manner by changes of pressure, from a small fraction of one ohm, up to a resistance of many thousand ohms," and this is practically what Dr. Massey did with his electrodes. It is not clear in his results that the *specific* resistance of sponge when conjoined with the high resistances of the human body, proves it to be a less or more suitable covering for electrodes than chamois skin, patent lint, cotton cloth, etc.

I do not know what battery cell Dr. Massey used, but taking his own figures, and estimating with the aid of the data furnished in the report of the Battery Committee of the Franklin Institute Electrical Exhibition (see *Franklin Institute Journal*, April, 1885), using the Leclanché disque, one of the cells having the lowest internal resistance, 1 ohm, and Flemming's Leclanché portable, having the highest, 13.5 ohms. Under the most favorable circumstances (*i. e.*, cotton, heavily pressed together) the external resistance of the circuit was 375 to 625 ohms. Allowing 100 ohms for the metal circuit, there are left 275 to 525 ohms as the *resistance of the cotton covering*.

Now, Dr. Massey advises "*two or three layers*,"[1] and confidently asserts "*it need not be feared that additional layers will add much to the resistance of the circuit*, as the experiments described below show that wet cotton, deprived of its natural oil, is a much better conductor of electricity than wet sponge." As it is apparent

[1] Italics are mine.

that each layer of cotton will add 275 to 525 ohms resistance, according as the battery cell used is of low or high internal resistance, I think there is good reason to question the value of his results.

If uniformity of resistance is aimed at in selecting an electrode covering, it will be found, not in absorbent cotton of *variable* thickness, but in some covering of *uniform* thickness, as cotton-cloth, patent lint, or chamois skin, long since recommended by Erb and De Watteville.

Respectfully,

Granville Faught.

115 N. Fifteenth Street, Phila.,
January 6, 1886.

NEWS ITEMS.

NEW YORK.

(*From our Special Correspondent.*)

The County Medical Society is very much interested in a suit brought against Dr. A. S. M. Purdy, a well-known practitioner, by a patient, who claims that through his action she was removed from her home, shut up in the Smallpox Hospital upon Blackwell's Island, when she did not have that disease, and was discharged by the hospital physician. The facts are, that Dr. Purdy, after calling in counsel, decided the disease to be smallpox. He reported the case, as he was bound, to the Health Department, and one of its inspectors, Dr. C. E. Lockwood, saw the woman and recommended her removal. A verdict for several hundred dollars was obtained by the plaintiff, the judge, in his charge, evidently siding with her, and holding that Dr. Purdy had "set the machinery in motion which led to her removal." No one at all familiar with the law can doubt for a moment that the Health Department is alone responsible, and that Dr. Purdy simply did his duty, and if he had not done as he did would have been subjected to a heavy fine. Several thousand dollars have been contributed for the purpose of appealing the case.

Health Officer of the Port.—A lively fight is being made for the position of Health Officer of the Port. Among the names prominently mentioned are those of Austin Flint, Jr., F. R. S. Drake, Hutchinson, and Lewis Foster, the last of whom is regarded as the "dark horse." The present incumbent has a staunch supporter in Senator Platt.

Am Ende, the Hoboken druggist, has just been acquitted. It will be remembered that through his carelessness morphine was substituted for quinine, and two young women were poisoned. One of them was the fiancée of a young Dr. Lowenthal, who nursed her through her last illness. The claim of temporary insanity was urged by the defendant. However flimsy such a plea may ordinarily be from a medico-legal standpoint, much sympathy is felt for the defendant. It is well known that at the time of the accident he was in a most deplorable state of mind. Many druggists are cognizant of his peculiarities of mind, his forgetfulness and absent mindedness. Am Ende is known as the inventor of absorbent cotton, and has had more to do with the success of antiseptic surgery than any person in the country, except the surgeons themselves.

Unlicensed Practitioners.—The pathway of the counsel to the County Medical Society is not one of roses. He has arrested all manner of irregular practitioners, the last of whom has sued him for false imprisonment. A general crusade against counter prescribing is about to be inaugurated.

The demand for cocaine has, like that for bromides and chloral, extended to the general public. One druggist sells no less than six ounces each month.

CINCINNATI.

(*From our Special Correspondent.*)

St. Mary's Hospital.—The following nominations, made at a recent meeting of the staff, have been confirmed by the authorities of this institution:

Dr. Adolph Grimm, to fill a vacancy in the medical staff occasioned by the resignation of Dr. Herman Wilfert, whose ill-health has compelled him to seek a more healthful climate.

Dr. E. W. Walker, promoted to the surgical staff.

Dr. James M. French, appointed Pathologist and Microscopist.

Within the last year, Dr. Frederick Kebler was also appointed to the medical staff.

St. Mary's Hospital ranks, in size, as the second in the city, having a capacity of 300 beds. It is under the management of the Sisters of the Poor of St. Francis, and was the first hospital opened in this country by that order. Although open to patients of every nationality and religion, it is patronized chiefly by the German poor.

Academy of Medicine Reports.—At a recent meeting of the Academy of Medicine, the custom of certain journals publishing unauthorized and very incorrect reports of the Society was severely criticised, and steps were taken to prevent such occurrences in the future. The accurate reports of The Medical News, however, received the approval of the Academy.

MONTREAL.

(*From our Special Correspondent.*)

Mortality Statistics for 1884–85.—The total number of deaths from all causes in 1884 was 4358, in 1885, 7885; increase of deaths in '85 over '84, 3527. This enormous increase is, of course, principally due to the smallpox epidemic which has been raging here for the last six months, but, exclusive of the deaths from smallpox, there was last year an increased death-rate of 363. This increase was due chiefly to an epidemic of measles and diphtheria, which occurred last spring. In 1884 there was not a single death from smallpox, but in 1885, in the city proper, the deaths from this disease reached the large number of 3164. If the deaths from smallpox in the suburbs be added, the total would amount to nearly 4500. The suburbs of Montreal, though continuous with the city, are not within its boundaries, but practically belong to it for statistical purposes: that is, if the statistics are to be worth anything.

Of the 3164 deaths from smallpox occurring in the city proper, 3067 were Roman Catholics and 97 were Protestants. The Protestant population comprises about one-third of the whole, and is well vaccinated; the Roman Catholics, with the exception of the Irish, among whom the mortality has been very small, are nearly all

unvaccinated. Here, then, is another nut for the anti-vaccinationist to crack.

The total number of burials in the Roman Catholic cemetery (which buries people both from the city and surrounding municipalities) last year (1885) was over ten thousand, the year before (1884) only five thousand.

Anti-vaccination Society.—An anti-vaccination society has lately been established here. The president is a notorious quack doctor, who lives by preying on the fears and credulity of those unfortunate youths who are afflicted with sexual hypochondriasis. He has the distinguished honor of holding a Philadelphia degree, supplied, for a small honorarium, by that king of doctor-makers—Buchanan. The vice-president is Dr. Coderre, and the members consist of all the peculiars and anti's in the neighborhood who are in fear of being fined by the health court.

The College of Physicians of Philadelphia held its annual meeting on January 6th, and elected the following officers and standing committees for the year:

President.—Dr. S. Weir Mitchell.

Vice-President.—Dr. John H. Packard.

Secretary.—Dr. Isaac Norris.

Treasurer.—Dr. Charles Stewart Wurts.

Honorary Librarian.—Dr. James H. Hutchinson.

Recorder.—Dr. J. Ewing Mears.

Censors.—Drs. Lewis Rodman, William Goodell, Alfred Stillé, Samuel Lewis.

Councillors (to serve until January, 1889).—Drs. Richard A. Cleemann, William Thomson.

Committee on Publication.—Drs. James H. Hutchinson, Robert P. Harris, Arthur V. Meigs, J. Ewing Mears.

Committee on Library.—Drs. I. Minis Hays, Samuel W. Gross, Morris Longstreth, George C. Harlan, William Osler.

Committee on Mütter Museum.—Drs. William Hunt, John H. Brinton, Morris Longstreth.

Committee on Hall.—Drs. Horace Y. Evans, Thomas Hewson Bache, J. Ewing Mears, Morris J. Lewis, William Barton Hopkins.

Committee on Lectures.—Drs. Joseph Leidy, William Goodell, William F. Norris, John H. Packard, Samuel W. Gross.

Committee on Directory for Nurses.—Drs. William W. Keen, Wharton Sinkler, James C. Wilson.

The Annual Meeting of the Philadelphia County Medical Society was held on Wednesday, January 6, at 4 P. M., the President, R. J. Levis, M.D., in the Chair. Over two hundred members were present, constituting the largest meeting of the Society ever held.

It was moved that the order of the day be suspended, and that, in accordance with the custom of the Society, the polls be opened forthwith and kept open until six o'clock. Numerous technical objections and dilatory motions were interposed, but finally, when a vote was reached, the motion was carried by an overwhelming majority.

Dr. D. Hayes Agnew, in a brief speech, moved that the list of delegates to the American Medical Association and to the Pennsylvania State Medical Society, which he then presented, be substituted for the list presented last October by the Committee on Nominations. Numerous objections and dilatory motions were again interposed; but finally, after considerable delay, the previous question was called and the yeas and nays demanded, Dr. Agnew's motion was passed, and the list of delegates he presented were elected by ballot, receiving 169 votes to 36 for the opposing candidates.

Dr. Agnew then offered the following resolutions, which were adopted with but a single dissenting vote:

Resolved, That at its annual election of delegates to the American Medical Association and to the Medical Society of the State of Pennsylvania, the Philadelphia County Medical Society desires to express its regret at the action of the American Medical Association at New Orleans, in view of the injurious results which have followed to professional harmony and to the prospects of the International Congress.

Resolved, That the delegates from this Society be instructed to endeavor to procure such modification of that action as may best conduce to the reëstablishment of professional harmony and to the success of the Congress.

The following officers were then elected for the ensuing year:

President.—Dr. R. J. Levis.

Vice-Presidents.—Drs. Wm. R. Cruice, Chas. Wittig.

Recording Secretary.—Dr. S. Solis-Cohen.

Assistant Secretary.—Dr. Benj. F. Nichols.

Corresponding Secretary.—Dr. M. S. French.

Reporting Secretary.—Dr. Wm. H. Morrison.

Treasurer.—Dr. L. K. Baldwin.

Censor.—Dr. F. P. Henry.

Librarian.—Dr. C. M. Seltzer.

New York Academy of Medicine.—At the annual meeting of the Academy, held on January 7th, the following were elected officers for the ensuing year:

Vice-President.—Dr. H. D. Noyes.

Corresponding Secretary.—Dr. Wesley M. Carpenter.

Treasurer.—Dr. W. F. Cushman.

Trustee.—Dr. G. A. Peters.

Committee on Admissions.—Dr. J. H. Emerson.

Recording Secretary.—Dr. A. M. Jacobus.

Committee on Library.—Dr. W. H. Katzenbach, full term; Dr. Laurence Johnson, short term.

Delegates to State Medical Society.—Drs. W. R. Birdsall, R. W. Amidon, W. E. Bullard, G. Bacon, and A. S. Hunter.

International Medical Congress.—Dr. R. J. Levis, of Philadelphia, having been notified recently that he was appointed a Vice-President of the Section of Surgery, has declined the position because of his conviction of the impossibility of organizing a successful Congress under the existing circumstances.

A New Medical Journal.—The first number of the *New Yorker medizinische Presse*, a monthly journal designed as a medium for the use of German American physicians, has just been issued. It is an octavo of 48 pages, containing original articles, editorials, and reviews, and gives promise of forming a valuable addition to journalistic literature.

Sanitary Inspection.—The inspectors in Chicago during the first nine months of the year, made 63,264

examinations, of which 51,381 were made in places of habitation, 10,499 in factories, stores, and other places of employment, and 1384 were made according to law in new buildings in process of construction.—*St. Louis Courier of Medicine*, December, 1885.

Yellow Fever Inoculations in Brazil.—Advices from South America state that Dr. Freire, of Rio de Janeiro, has already inoculated 5000 persons in Brazil for the prevention of yellow fever, and that not one of this number has died of the disease, although the great bulk reside in centres of infection.—*Lancet*, December 19, 1885.

Cremation in Germany.—A member of the German Reichstag is stated to have tabled a petition in favor of the introduction of optional cremation. The petition bears more than 23,000 signatures, tendered in various towns and cities of the empire, among them being those of 1942 physicians, 1006 lawyers, 849 professors and teachers, 361 women, and 13 clergymen.

Open Prizes of the Madrid Academy.—The Medico-Chirurgical Academy of Spain commenced its sessions for the year on November 30th, when a paper was read by Señor Ustariz on "The Necessary Reforms in Hospitals for the Practice of Antiseptic Surgery." The subjects for the academical prizes for the next year were announced, viz.: 1. Academy Prize: What Modifications has the Panspermist Doctrine introduced in the Treatment of Internal Diseases considered or suspected to be of Parasitic Origin? 2. Señor Morales' Prize: Progress in Operations on Bones; Criticism. The first prize is 250 pesetas ($50); the second, 750 pesetas ($150). The essays may be written in Spanish, Portuguese, French, Italian, English, or German, and are to be sent in to the President, directed "Montera, 22 Bajo, Madrid," before September 15, 1886.

Mr. Erichsen, of London, has been defeated in his candidacy for Parliament as the representative of the University of Edinburgh.

Dr. Heywood Smith.—The conduct of Dr. Heywood Smith in reference to the girl Eliza Armstrong has been investigated by the Royal College of Physicians, who have received from him, and carefully considered, his explanations and apology; and at a general meeting of the College, held on Friday, December 18th, specially summoned to receive the report of the President and Censors on the subject, the following resolution was adopted: "The College having considered the statements made by Dr. Heywood Smith, and his apology through the Censors' Board, while acquitting him of deliberate intent to do evil, desires to put on record an opinion that he has committed a grievous error in connection with the Armstrong abduction case, which has brought discredit on himself and the profession to which he belongs. The College, therefore, regards his conduct as deserving the severest censure, and requests the President to express the views of the College, and to reprimand him accordingly." The President has accordingly addressed to Dr. Heywood Smith a severe reprimand, and warned him to be careful as to his conduct in the future.

M. Mathias Duval has been named for the Chair of Biology in the Paris Faculty, as the successor of the late M. Robin.

Official Recognition of Female Physicians.—The first official recognition of female medical practitioners has just been made by the Italian government. The recipient of this distinction is Signorina Terne, M.D., whom Queen Marguerita has appointed one of her physicians in ordinary.

Heidelberg University.—The 500th anniversary of the foundation of the Heidelberg University will be celebrated next August. The celebration will be held in a hall specially constructed for the occasion, capable of holding 5000 persons.

The Russian medical authorities have sent Dr. Raplshevski to Spain to study the epidemic of cholera, and to report on the results of inoculation.

NOTES AND QUERIES.

AN UNUSUALLY LONG UMBILICAL CORD.

To the Editor of The Medical News.

Sir: I saw, in The Medical News of November 14, 1885, a note from A. H. Garrett, M.D., of Oswego, Kansas, under date of November 2, 1885, stating the length of an unusually long umbilical cord, and like him, thinking it might be of some interest in statistics on the subject, I will state the length of one I found in my practice recently.

On December 30, 1885, I delivered a white woman of a female child whose umbilical cord measured four feet and one-fourth inch. The cord encircled the neck three times and the body once. The mother, a multipara, stated that the labor was two weeks before term. Child weighed nine pounds. It and mother were in healthy condition and labor normal.

Respectfully,
J. C. Cowan, M.D.

Mass Point, Mississippi,
January 6, 1886.

A VESICAL CALCULUS OF UNUSUAL SIZE.

To the Editor of The Medical News.

Sir: The weight of the vesical calculus removed by me from a lad fourteen years old, and exhibited at a meeting of the New York County Medical Association December 21, 1885, is *seven ounces and four scruples*, Troy weight, and not four ounces and four scruples, as reported.

The patient in now convalescent, and will be discharged from the hospital in a few days. Please give this correction a place in your valuable journal, and oblige

Yours truly,
Theodore R. Varick, M.D.

Jersey City, January 9, 1885.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JANUARY 5 TO JANUARY 11, 1886.

McParlin, Thomas A., *Colonel and Surgeon.*—Now awaiting orders in New York City, ordered for assignment to duty as Medical Director, Department of the Platte, on January 24, 1886.—*S. O. 5, A. G. O.*, January 7, 1886.

Goddard, Charles E., *Major and Surgeon.*—Died at Fort Yates, Dakota Territory, January 4, 1886.

Munn, Curtis E., *Captain and Assistant Surgeon.*—Ordered from Department of the East to Department of Columbia.—*S. O. 4, A. G. O.*, January 6, 1886.

Shannon, William C., *Captain and Assistant Surgeon.*—Ordered from the Department of the Platte to the Department of the East.—*S. O. 4, A. G. O.*, January 6, 1886.

McCaw, W. D., *First Lieutenant and Assistant Surgeon.*—Relieved from duty at Fort Lyon, Colorado, and ordered for duty at Fort Leavenworth, Kansas.—*S. O. 1, Department of Missouri*, January 4, 1886.

Swift, Ebenezer, *Lieutenant-Colonel* United States Army (retired).—Died near Hamilton, Bermuda, December 24, 1885.

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

PROLAPSE OF THE VAGINAL WALLS, DUE TO LACERATION OF THE CERVIX AND INJURY TO THE VAGINAL OUTLET.

A Clinical Lecture delivered at the Jefferson Medical College Hospital, January 12, 1886.

BY THOMAS ADDIS EMMET, M.D., LL.D.,
SURGEON TO THE WOMAN'S HOSPITAL IN THE STATE OF NEW YORK.

PROFESSOR THEOPHILUS PARVIN introduced the lecturer with the following words:

GENTLEMEN, the names of the two Americans who are most identified with the advance of knowledge in the diseases of women, are names of gentlemen who have graduated at the Jefferson Medical College. Further, not only in this country are these names most identified with this branch of medicine, but throughout the whole world they stand preëminent among those who have advanced our knowledge of the diseases of women.

One of these gentlemen, Dr. Marion Sims, passed away two years ago; the other is with us to-day to teach you and to teach me; and if there be a man in all the profession whom I especially call master, it is he whose lessons I have tried to teach, and whose lessons I shall continue to teach. To-day you have the opportunity of seeing and hearing the master himself, Dr. Thomas Addis Emmet.

DR. EMMET said:

GENTLEMEN, I am sure that I cannot find words to reply,—to say what I would like to. I feel it a great compliment to be here to-day, which is something that I could never have dreamt of in my student days. But I am almost like Rip Van Winkle, for it is thirty-six years since I left this college, and I am sorry to say that this is the first time that I have been in it since I was graduated. The professors, and I believe all that were then connected with the school, are dead. I greatly appreciate the compliment of being asked to speak to you, but as we have a great deal to do, I shall not waste any more time but proceed to business.

CASE I.—I have just examined the case which is being put under ether. It is a case of procidentia, occurring in an elderly woman, that is prolapse, entire, of both the vagina and uterus. There are several causes for this condition, but it is generally due to a laceration of the cervix. I believe that, as a rule, procidentia occurring in women who have borne children, is due to injury of the cervix. We have, however, exceptions to the rule in women who have not borne children. The condition may be then brought about by lifting and straining where there is a small fibroid favorably situated, or with the bladder distended.

Various methods for holding up the uterus have been employed. If a proper pessary could be devised, it would not be necessary to resort to any surgical measures; but unfortunately mechanical means do not answer. The object of any procedure to cure procidentia, is to place the uterus in such a position that the circulation can be reëstablished, so that the involution, which has been arrested, may go on. You may have a case of marked procidentia in a woman whose last child was born twenty years previous, in whom there is apparently no laceration, yet the line will be there, and if the dense tissue is removed from the cervix and the parts brought together, in about forty days, as the Bible points out, it will be found that the uterus has returned to its natural size. Since we have recognized the fact that procidentia is due to laceration of the cervix, we operate for that lesion, and have to resort to the operation for supporting the uterus by an operation on the vaginal wall in comparatively few instances, but when it becomes necessary to do it, as it is in this case, we perform it according to the method which I shall explain.

The first operation to remedy this difficulty was suggested by Marshall Hall many years ago, although I believe that neither he nor any one else, before Sims, attempted to put it into practice. Marshall Hall suggested that two parallel surfaces be denuded on the anterior wall of the vagina, and that these denuded surfaces should be brought together with sutures. In that way a double vagina would be formed. The operation proved an entire failure, for one fold after another of the anterior wall of the vagina would come down against the line of union until, if absorption did not take place and the whole line give way, the septum would be gradually dilated until it came against the posterior wall of the vagina, and the operation would thus prove a failure, and this was a question of only a few weeks.

This operation was modified by the late Dr. Sims about the year 1846. He brought these surfaces together at one end near the neck of the bladder, and passed the sutures in the same way across the undenuded portion. This was a great advance, but before going further, I should mention that Dr. Sims's first attempt was not as I have described. He was like the man who was "death on fits;" if he could get his patient to have fits, he knew where he stood. This was about the time that Dr. Sims was introducing his operation for vesico-vaginal fistula. He attempted to cure the trouble by removing the excess of vaginal tissue, and making a vesico-vaginal fistula, and then bringing the surfaces together. But he failed to enter the bladder, as he did not realize that the bladder and vagina are in contact to a very limited extent, and confined to the triangular space between the mouth of the ureters and the urethra, each side of which does not measure more than one inch. This operation, without entering the bladder, was wrong in principle, and it failed. When this tissue was crowded up against the bladder it encroached greatly upon the cavity, and pressed more or less upon the ureters, setting up irritation and cystitis, and leading to dilatation of the ureter and renal disease. I have followed up

several cases where that operation was done, and the result was as I have described; I am, therefore, sorry to see that within recent times this form of operation has again been proposed.

Having failed with this, then Dr. Sims took the Marshall Hall operation, and modified it by bringing the lower extremities of the parallel surfaces together, making the denuded surface of a V-shape. This, as I have said, was a great advance. If these surfaces were brought together in the median line, it acted as a crutch in front of the uterus to keep it up. The fold thus formed grasped the enlarged cervix and supported it, provided the tissues below met in the median line. But after the lapse of a few months, when involution had taken place, this fold no longer grasped the uterus, and it would sometimes get behind the pouch and come down as before.

Having seen these cases, where there was a great deal of trouble, I modified the operation. This consisted in making a cross-section in front of the cervix, thus uniting the extremities of the V-shaped denudation. I had no fear in shutting up the cavity, although Sims always left an opening in order that fluids might escape, and yet nothing but a little mucus could be secreted, and this would be easily absorbed. The principle is this, if you can support the uterus and allow involution to take place, the over-stretched tissue will retract, and the vagina will return to its natural size. Although there is a cavity left between the surfaces at the time of the operation, there will be no cavity when the tissues have retracted. It is like a piece of over-stretched India-rubber—if the traction is taken off, there will be retraction. The closure of this cavity formed no objection to the operation, while the opening left by Sims was rather a weak point. I thought that I had reached perfection in the operation, for when properly performed, it was all that could be asked; but I found that the method could never come into general use, because it required constant practice to bring the line of union always in the median line. If the upper stitches were not properly introduced, denuded and undenuded portions would be brought together, and the operation would fail. It required an expert to bring the parts up in such a way that they would fold on themselves instead of coming together as with a running-string. I then made the modification of the operation which I shall use to-day.

In these cases, the uterus is retroverted, and the first thing to be done is to antevert it, and then pass a probang into the cul-de-sac of the vagina, and thus keep the uterus thrown forward. Now place the patient on the left side and introduce Sims's speculum. Then find three points, one on each side of the uterus and a third in front, which can be brought together without undue traction. A surface is then denuded at these three points, and the two lateral ones are brought in apposition with the median point, and secured by an interrupted silver suture. When this suture has been twisted, a fold is brought up in front of the cervix, by which the uterus is held up. We have then two long folds formed by the excess of tissue and extending toward the vaginal outlet, and which have to be disposed of. One advantage of this method is that it dispenses with the hand of an assistant, for the uterus cannot now come down. The old operation was a bloody one, for the whole surface had to be denuded before the sutures could be introduced. In the present operation, having inserted the first suture, a portion of the crest of the fold can be denuded on each side for half an inch in extent, and readily brought together, as several sutures are introduced. Having done this, the process is continued until all of the folds have been turned in.

When there is an excess of loose tissue about the urethra, it is necessary to dispose of the mass in a special manner, as it cannot be gotten rid of by continuing the line from the cervix. If we separate in the median line, at the crest of the cystocele, and go off to each side so that the line of union on the anterior wall is A-shape inverted, this excess of tissue can all be drawn up. But there is almost always a break in the line of union at the junction of the three lines, so that a second operation becomes necessary. To overcome this difficulty, it is better to stop turning in the tissues along the median line just at the crest of the cystocele. Then denude below two lines near the neck of the bladder, and across the vagina from one sulcus to the other, so that these surfaces represent a crescent in shape, with undenuded tissue in the centre. If these freshened surfaces have been made at the proper distance from each other, all the loose tissue about the urethra will disappear as soon as the sutures have been secured.

You must bear in mind, as I have already stated, that the whole object to be gained by any operative procedure in procidentia is to hold the uterus at such a position in the pelvis that the circulation can be restored, thus giving a chance for the involution which has been arrested to be completed. We cannot gain this object by any form of pessary yet devised, for the downward pressure will force the folds of tissue into every crevice, causing sloughing, or with the effect of dilating the vagina still more.

The success of this operation depends upon the use of just the proper amount of traction in bringing the parts together. The denuded surfaces should not be separated any more than is necessary to bring the parts in apposition. If the denudation extends any further than this, it makes no difference what kind of sutures you use, they will cut out. No suture can stand the persistent traction of the pelvic fascia. It is an art to know how far apart you should denude these surfaces.

(The patient was now brought in and operated on in the manner described.)

The operation is now completed by turning in the excess of tissue, and the anterior wall of the vagina is of the size that it was before the birth of this woman's first child. The term "narrowing the vagina" is a misnomer. You cannot narrow the vagina, and the term should never be used. This operation is not, therefore, for narrowing the vagina. The sulcus on each side of the vagina is in direct connection with the fascia and connective tissue of the pelvis. If you bring traction on these, no suture could stand the strain. You are to turn in the tissue as this woman would do by a plait in her dress if it was too large for her. You therefore do not narrow the vagina. You cannot approach the surfaces any nearer to each other than they were before the birth of the woman's first child. It is only the excess of overstretched tissue that is removed.

Let me now show you on this towel how to introduce a silver suture. Suppose that we have here a slit which I desire to bring together. Dr. Sims, to whom we are

indebted for the introduction of the silver suture, at first laid down the rule that it was absolutely necessary that the suture should be passed equidistant from the edge of the wound, for if this were not done, the denuded and undenuded tissue would be turned in together, as the sutures were twisted. This difficulty is overcome by shouldering the suture, as it is termed. Take a tenaculum and catch the edge of the wound at the point where you are to introduce your needle; then evert the edge of the wound, and see where you want to bring the needle out. You then advance the needle against the tenaculum as a point of counter-pressure until the point of the needle can be caught with the forceps; then catch the opposite side of the wound, and rotate it outward, and note where you want to introduce the needle. Then bring the needle out anywhere, so that you get it through. The next thing is to make a shoulder or sharp angle on the suture, so that the angle of each will come together at the line of union. Here is the important point where so many fail. Here is an instrument introduced by Dr. Sims, and called a shield. If the wires are passed through the slit, and twisted at a right angle to the direction of the shield, as is usually done, it is only an accident when the suture is not twisted too tight, so as to strangulate the tissues—and with failure as the rule. But if I bend the wires, now in the grasp of the forceps, over the thin edge of the slit, so that the forceps and handle of the shield lie together in the same direction, and twist the sutures until that angle formed by the two wires is no longer seen, the edges of the wound will be only just in contact. If the twisting is carried any further, the parts in the loop of the suture will be strangulated.

Next it is most necessary to make the suture lie flat. To do this lift the suture at the angles with a tenaculum as a fulcrum, and when you have bent the extremity over, make pressure downward with the same tenaculum at the point where you wish to cut the end of the suture off; it will then lie perfectly flat. I recently removed a suture which I had inserted seventeen years ago, and since then the woman has had two or three children. The suture was lying as flat as when it was inserted. It was, however, up to one side of the cervix. It is by attention to these details that success is attained. I would advise you to take a towel and practise what I have told you, until you acquire the knack of properly introducing the suture. When you are able to do this, you have acquired one-half the art of plastic surgery.

CASE II.—Gentlemen, I have here a case of double laceration of the cervix very deep, and also partial procidentia. To-day the laceration will be operated on, but the operation on the vaginal wall for procidentia if needed must be performed later, for the operation would take a long time, and even if I were to do it, you would not be able to see much. I can occupy the time much better by saying what I have to say about laceration of the cervix, and shall therefore ask Dr. A. P. Dudley, who was, a short time since, one of the house surgeons of the Woman's Hospital, to do the operation. He will do it just as I would do it.

There is a great deal to be said on the subject of laceration of the cervix. The lesion is of frequent occurrence. I have no doubt that Eve's cervix was lacerated, and since that time the cervix of nearly every woman who has borne children has been lacerated. I do not believe that a woman can give birth to her first child without more or less laceration of the cervix. It is a very important point to know when an operation is necessary. There are a great many cases of laceration of the cervix in which no interference is required. I sometimes think that almost more harm than good has been done by the operation, although in so many cases there is no operation that can take its place or accomplish so much. It is important to know under what circumstances an operation is required. I have noticed that in the cases in which interference is called for, there has been, as a rule, a bad getting up after the labor. If a woman has no milk, or does not get up well, it is always a suspicious sign of laceration of the cervix, with the occurrence of a certain amount of septic inflammation in the pelvic tissues, and it is probable that the laceration will not heal so long as that inflammation exists. I believe that if obstetricians understood this matter more thoroughly, and gave a little more personal attention to a patient who has been delivered with forceps, or who has had a hard or rapid labor, and determine whether or not pelvic inflammation exists, so that it may then be treated, in the majority of cases nature would readily repair the injury, and that within a few years the operation will be called for less frequently than it is at present. If this pelvic inflammation exists, it should receive proper treatment immediately after labor, for at this time treatment will accomplish more in a few weeks than can be gained in months, if the disease is allowed to go unchecked. The early recognition of the trouble is therefore of great importance, as the reparative process would be as active as that which would take place in the uterus under favorable circumstances.

If we have the case going on beyond that time, with involution arrested, with the uterus enlarged, and more or less pelvic inflammation or thickened broad ligaments, which is the usual lesion, the case must now be properly prepared before the cervix should be operated upon. Until the preparatory treatment has been carried out, it is impossible to say what cases require operation and what cases do not. This is where the mistake is made by many. The patient must be gotten as well as possible before an operation is performed. What you wish to do is to cure the pelvic inflammation and restore the circulation to its proper condition. So long as there is cellulitis, or any form of pelvic inflammation, the circulation must be obstructed, causing the parts to roll out and to exaggerate the existing lesion. I at one time thought that the rolling out was due to mechanical causes such as standing or walking about, but I am now satisfied that it is due to obstruction of the pelvic circulation. I was once astonished to find that a young girl, with whose history I was well acquainted, apparently had a laceration almost to the internal os. She had cellulitis, and I supposed that an abortion had been produced. I treated the cellulitis, and as the inflammation improved, the parts rolled back, and she then had a virgin os. I mention this case to show the importance of proper preparatory treatment.

How are you to treat such a case? If possible, she should be treated in a hospital. She should be taken from her home. She is unfit to be a wife, and must be in a position where she has no care or responsibility, and to vegetate, if possible, for a few months. The mind

has so much influence over the body, especially in this condition, that it is important to keep the mind tranquil. The main treatment is hot water injections, but these must be given properly. They should be given by the hand syringe and not with the siphon syringe. Heat, cold, and electricity will cause the vessels to contract and bring about the condition we desire. Electricity will cause the vessels to contract, but only while the current is passing. Cold will cause the vessels to contract, but unfortunately when reaction occurs, the vessels become larger than before. Heat at first produces a temporary congestion, but if the application is prolonged, contraction of the vessels is produced; therefore, the reaction from heat is contraction. We wish to cause contraction of these vessels and if so we can starve out the cellulitis and bring about absorption of the inflammatory deposits present. I hold that there is something in the jet of the hand syringe. It probably acts on the same principle as the dashing of water into the face of a person who has fainted. If you give a woman a douche with a siphon syringe and prolong it for an hour or two, you get about the same effect as from a fifteen minute injection with a Davidson's syringe. If the siphon syringe is used, it must be prolonged for a considerable time. The use of hot water, with the hand syringe, as the patient lies on her back with the hips elevated, has the effect of puffing out the vagina, so that the hot water comes in direct contact with the vessels, and will accomplish more than any other means of treatment.

The application of iodine will prove of the greatest benefit. This is not to be applied to the uterine canal for fear of increasing the cellulitis. I have not made an application to the uterine canal during the last five or six years, except in cases of vegetations, where I have been obliged to use it to control hemorrhage. There exists the closest relation between the surface of the uterine canal and the peritoneum. If you have an assistant, Sims's speculum may be used, with the patient on the left side so that the iodine may be applied to the posterior cul-de-sac and to as much of the vagina as possible without coming in contact with the external orifice. The preparation which I use is known as Churchill's tincture of iodine, and is four times stronger than the ordinary tincture. If you have no assistant, the woman may be placed in the knee-chest position, so that Sims's speculum can be held in one hand as the application of iodine is made with the other.

If you have the patient in the hospital under control, you can daily put a pledget of cotton, saturated with glycerine, under the well side of the uterus, behind, in front, or in such a way that the uterus shall be raised somewhat so as to take the drag off of the thickened broad ligaments. A pessary is not applicable, for it will press against one broad ligament or the other, or if the inflammation is behind the uterus, you cannot apply it at all. You make the best progress when you have the patient directly under your eye, and can daily use these pledgets of cotton so as to raise up the neck and take the strain from the shortened broad ligaments, for this does much to restore the circulation in the pelvis.

The follicles in the mucous membrane of the cervix, undergo cystic degeneration in this condition and it is very important to get rid of them. As these enlarge and increase in number, they roll out the tissues, to a point where, when cicatrization takes place, the parts are almost strangulated as if a cord were wrapped around the cervix. Everything is to be gained by puncturing these cysts. There are sometimes literally thousands of them, and just as you get rid of them by puncture you help to restore the circulation, and the parts gradually roll back. It is not until the cysts have been emptied, the flaps reduced in size, and the parts have rolled in again that you can tell what cases will require operation. You will be surprised at the amount of improvement which can be brought about in two or three months of this treatment, and its use will lessen the number of operations necessary to be performed on the cervix. If the operation is done too soon, these cysts will be shut up within the flaps as a source of irritation and if you do get the union that is desired, there will be no improvement. On the other hand, even with the uterus four or five inches deep, if the treatment has been properly carried out so that the cysts have been emptied and the cellulitis reduced, it will in the course of three or four weeks after the operation return to nearly its natural size.

I have been speaking of cases of recent origin. You will, however, meet with a class of cases which have extended over a period of years, where the woman has become anæmic and nervous, and presents any number of reflex symptoms, from a pain in the end of the nose to a pain in the toe, for which no reason can be found. She has frequent headache, pain in the back, and particularly in the nape of the neck, which is a common sympton, often sleeplessness, and inability to fix her mind on any subject, or to take any responsibility. In many of these cases, the parts have healed and often there is apparently no laceration, but the whole uterus, and especially the neck, remains too large.

If you take a case of enlargement of the uterus, from any ordinary condition, you will find, as you run your finger into the cul-de-sac of the vagina, upon the sides, that the organ is of uniform thickness, so that the portion of the cervix below the vaginal junction is of the same size as the body above. It is a uniform enlargement. If, on the other hand, you take a laceration, whether a fissure exists or not, there is always a certain amount of rolling out, so that you can feel a mushroom-shaped cervix. After the flaps have separated, nature will sometimes go to work and fill in the space between them with cicatricial tissue, or a new growth of tissue, as it has been claimed, until the fissure is filled up, and there is apparently no laceration, and yet in these cases the injury often has been the greatest. The only exception to this rule of rolling out, or club-shaped cervix, as an indication of the injury, is the circular laceration. If the lacerations take place in different directions, from within outward, so as not to reach the vaginal surface, they will open out the cervix so that the finger can be passed to the internal os. This is not an uncommon form of laceration, and there is here no rolling out as is seen in cases of lateral laceration. In the ordinary form of laceration, many think that if they simply denude on each side and bring the parts together, without removing the dense tissue in the angles, that they have overcome the difficulty, and they are surprised to find that they do not get good results. If I place a spool between my fingers, and then bring them together, I have included

a foreign body which will obstruct the circulation. Instead of the uterus decreasing in size after the operation, if this foreign body be left, it becomes larger, and the woman, instead of being relieved, is made worse.

In these cases, where there is no apparent laceration, and the cervix is enlarged, if you take a pair of scissors and cut through the tissues down to the vaginal junction, you will pass through or come to dense tissue. Cut this tissue out, and you may call it cicatricial tissue, new growth, or whatever you choose. It is a clinical fact that, if you do thoroughly remove this tissue and bring the surfaces together, you will relieve the symptoms. An important gain is that you will also cure the anæmia. Why? You know that the sympathetic presides over the genital organs, and also over nutrition, so that the relation is a very close one; therefore, when a source of irritation has been removed, nutrition will promptly assert itself. This is the only way that we can explain the fact that, after the removal of this tissue, the anæmia will disappear, and the woman will sometimes gain twenty or thirty pounds of flesh in a year, and will, at the same time, get rid of the most anomalous reflex symptoms.

I shall now refer to circular laceration. The first step in the operation necessary for the relief of this injury, is to cut open the cervix on each side with a pair of scissors to the vaginal junction, then denude a surface over each flap, leaving a space between large enough to form the uterine canal when these have been brought together with sutures, as in an ordinary lateral laceration. In these cases you will often find an immense number of cysts about the internal os, where the mucous follicles are large, and they can be brought into view and removed, on widely separating the flaps when the parts have been drawn down to the vaginal outlet. Occasionally we are called on to treat cases of lacerated cervix which have been neglected through a long series of years, until the whole cervix has undergone cystic degeneration. I have been misrepresented as opposing amputation of the cervix in such cases. I have never opposed the operation, but have always resorted to it in a certain set of cases. It is bad surgery to shut up these cysts, and it is as impossible sometimes to bring about a healthy condition, as it is to do so in the tissues of a tonsil which has been inflamed for many years. The shortest way to effect a cure is to get rid of the whole diseased tissue. In these cases, I partially amputate the cervix, removing only the diseased tissue with a pair of scissors, and always cover the stump with vaginal tissue by Sims's method. My objection to amputation does not apply to these cases, but to the condition which is claimed to be an elongated cervix. I deny that the flap of a laceration is elongated, even if it appears to be so. I will show you where the explanation of the condition lies, and also how you can cure these cases without amputation. Sometimes where the vaginal canal is very open, the anterior lip will roll out, and the vaginal tissues will become crowded over it, so that the lip will be apparently much longer than the posterior one, but the amount of uterine structure in one is no more than that in the other lip. The appearance is due simply to the crowding down of the vaginal tissues, as in a prepuce. This is proven by the introduction of a sound into the bladder, when the extremity of the instrument reaches a point on the crown of the cervix, which it could not do if its insertion within the vagina was really where it seemed to be. Both flaps can be brought together accurately, by so denuding the vaginal surface, when forming the angle, that one flap shall be as long as the other, and this can be done without any reference to the angle at the uterine canal. If done properly, the tissues on the anterior lip will roll in, or be stripped back, so that the anterior lip will be no longer than the posterior. In these cases I have opposed amputation because I know that the neck is not elongated. There are cases which are termed congenital elongation of the neck of the womb, but these have nothing to do with the condition which I have been describing.

The patient on whom Dr. Dudley is operating has another lesion, which may be described by saying that the running string has been lost from the vaginal entrance. This is what is usually called a laceration of the perineum. Although we shall not have time to operate, I should like to explain the condition. As a rule, the perineal body is not torn by the child's head. It may be torn by the forceps from above downward. This lesion of the perineum is very different from what it is supposed to be. It is a tear directly across the passage and just within the vagina behind the fourchette. The idea is, that when the child's head is pressed against the muscular barrier, and the outlet of the vagina is not dilated enough for it to pass, the canal must be torn at its insertion, if the force behind is able to overcome the resistance in front. It is like a strong man trying to go through a door which is not large enough to permit him to pass through, and, in his efforts, he may carry the doorframe with him; but the force could not be so applied that he would simply break the sill across. The perineum is generally torn when the sphincter is, and when the tear begins and extends from before backward in the median line. The relaxation and protrusion of the tissues, in this case, are due to the transverse tear I have described, and the cicatricial line can be plainly seen. It has separated the pelvic fascia just where it is reflected from the sulcus on each side over the muscles at the vaginal outlet. In no case do the fibres of the levator ani muscle interlace, and often they do not approach within half an inch of each other. When the transverse tear takes place, and the head continues to advance, the connective tissue between these muscles separates, and the muscles themselves are drawn aside, as a curtain, with often not the slightest injury to the skin in front, or to the mucous coat of the vaginal canal. The transverse perineal muscle, from its insertion in the tuber ischii behind, must naturally tend to draw the muscles apart and roll out the tissues, as the lower lip would fall off from the bone if the attachment in front were cut away. In other words, the real extent of injury is an exaggeration. It is very rare that any portion of the skin, or any tissue outside of the vaginal outlet, is torn in these cases.

What is the effect of this? The woman does not suffer from want of support to the uterus when she has what is called a laceration of the perineum. The perineum has nothing to do with its support. A woman's perineum is certainly lacerated when the sphincter is torn through the median line, and yet I have to see the first woman who has complained of difficulty in walking or standing from this cause. That, of itself, shows that it is not the perineum that supports the uterus.

The purpose of the perineum is to support the curve of the rectum and prevent the rectum from bulging into the vagina. When the muscles are separated in these cases, we must have a rectocele. The sulcus on each side of the vagina is in direct connection with the connective tissue of the pelvis. When the parts are normal the upper portion of the vagina is as fixed as the roof of this room. The fascia and connective tissue on each side bring the posterior wall up against the anterior one. It is like taking a rubber tube and making lateral traction: the sides will come together. I claim that separation takes place, across the vagina, behind the outlet, where the vagina is inserted into the muscles. When this occurs, the fascia on each side is divided. As soon as that is done, there is a slacking of all the connective tissue in the pelvis and the woman suffers not from a want of support to the uterus from loss of the perineum, but from want of proper support to the blood-vessels, which, without the needed support, will enlarge indefinitely. After a long time, when the uterus has become heavy from continued congestion, it comes down to the floor of the pelvis, becomes retroverted, and so on, but this is not the case in the beginning. I cannot explain this slacking up of the pelvic fascia better than by describing something that occurred to me when a boy, in the days of trundle-beds. With the springs of to-day you know nothing about the manner in which the sacking-cloth was stretched on these beds. The bed in which the children slept was pushed under a larger one, and the bedding was supported by a piece of canvas or sacking, which was kept tight by means of ropes secured to pins in the frame of the bed. By long usage, these pegs had become worn at the bottom, and I well recollect the time we had when the rope would slip off from the pins. When several loops of the rope slipped at the foot of the bed, the sacking would of course become slack up the middle. Suppose the rope could not be put on the pins again, with the condition I have drawn here on the board, could we not overcome the difficulty by bringing up the slack in a fold on each side across the lower angles of the bed? This fold is just in the same direction and relatively in the same position where we bring up the tissues in the vagina, with the object of making traction on the fascia and connective tissue of the pelvis, that the proper support may again be given to the rectum and bloodvessels. To do this, and on the same principle as I did in the other operation on the anterior wall, to dispose of the excess of tissue about the urethra, you are to denude a crescent with a horn extending into the sulcus on each side. This denuded surface will, therefore, extend across the vagina, and just within its entrance, and will include the anterior face of the rectocele and the posterior face of the muscular barrier on each side of the vaginal outlet. These two surfaces are to be brought together by interrupted sutures, as was done on the anterior wall, and we thus dispose of the rectocele. The separated muscles are then to be brought together by special sutures, but it is impossible to explain the operation so that you can understand it fully, without demonstrating it on the subject.

I will state, that after you have been graduated I will be glad to see any of you at the Woman's Hospital in New York. My operating day is Tuesday, at two o'clock. I will then be able to show you every step of the operation.

ORIGINAL ARTICLES.

FOURTEEN DAYS WITH PASTEUR.

BY FRANK S. BILLINGS, D.V.M.,
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THE writer was selected by Dr. H. C. H. Herold, President of the Board of Health of Newark, N. J., and by Dr. Wm. O'Gorman, of that city, to accompany to Paris four boys who had been bitten by a *supposed* rabid dog, in order that they might have the advantage of the preventive treatment of M. Pasteur. As the parents of the children had not sufficient means to send them, Dr. O'Gorman, a gentleman of great benevolence, and enjoying the first position among the practitioners of Newark, resolved that they should be sent, and opened a public subscription which was liberally supported by many benevolent citizens of that city and elsewhere.

The names of these children were, William Lane, fourteen; Austin Fitzgerald, ten; Patrick Reynolds, ten; and Eddie Ryan, five years old. They were bitten on Dec. 2, 1885, and all by the same dog. The wounds of Lane and Reynolds were upon the hands, and under ordinary circumstances would be thought nothing of, but, as is well known, the smallest wounds in case of rabies are even more to be feared than large ones that bleed freely, and again that the percentage of rabies in human beings actually resulting from the bite of a rabid dog has been found to be greater for the superior extremities and the face than for other parts of the body, on account of their being generally unprotected by clothing. The little Ryan boy was bitten quite deeply in the elbow of the right arm, probably by the teeth of the dog, but at the same time the teeth had to penetrate through an unusually thick and felt-like piece of cloth with which the arm of his winter coat happened to be patched at this point. The Fitzgerald boy was not only the most delicate of the four, but was also the most severely bitten; one wound being upon the hand, the thumb having been penetrated very deeply at its base. The other bite was in the gluteal region, and was accompanied by considerable laceration and free bleeding; naturally, the teeth had penetrated through clothing also. Two other children were also bitten by the same dog, but as they were not sent to Paris and were never seen by the writer, but little can be said about them; still, as the whole escapade was an experiment, it is very well that they were left behind as controls, but we must earnestly hope they are in no danger thereby. At about the same time of the day these children were attacked, the same dog was said to have bitten several other dogs, six of which have been discovered and are still in close confinement under veterinary supervision, by order of the Newark Board of Health.

It is greatly to be regretted that so much of hypothesis is connected with these cases as regards the true nature of the trouble with the dog. Indeed, so much contradiction exists, that one can scarcely say what kind of a dog it was, but from all that can be culled from these stories, it seems that it was a middle-sized, short-haired dog, probably with some pointer in his breeding.

The following facts tend to support the hypothesis of rabies:

The dog was certainly in a state of the most intense cerebral excitement. Unlike an ugly, biting dog, he did not stop to tear up or continually bite, or fight with either the children or with the dogs bitten by him. In his frenzy he simply snapped at such living objects as were directly in his way, making a quick snapping bite or two, scarcely stopping to shake the children at all, and then making off; it was not long before he was followed by a small army of would-be-destroyers, and was finally found in a back yard on a shed, trying to gnaw his way through the surrounding board fence. There he was shot, and found his way to the knackers without any autopsy having been made.

This history, however, is sufficient to have warranted the Newark authorities looking upon the case with the utmost suspicion, especially as there had been several genuine cases of rabies canina and hydrophobia in the city and vicinity a short time previously. One was especially instructive, as it illustrates the circumspection with which sympathetic people should avoid demonstrations to stray and suffering curs upon the streets. The lady in question, on passing down a street, saw a small dog by the curb in apparent suffering; she stopped to pat and sympathize with it; the dog snapped at her, merely drawing a little blood from the hand; she died under terrible suffering within two months from that day. The writer knows of two similar cases in the vicinity of Newark, and there had been quite an unusual number of suspicious dogs killed before this accident.

There can be but little sympathy from scientists with the excitement kept up by the papers; still some good will come of it, and, as some assert, only by such a course is it possible to attain much support from the public for the advance of preventive medicine.

The children sailed on the Steamship "Canada" of the Companie Générale Transatlantique, on Wednesday, December 9, 1885, the Company also taking a liberal part in the general benevolence by placing them in the second cabin both to and from Paris. They were treated with great consideration, and all of them showed most pleasing indications of physical improvement. The passage over, as well as the return upon the same ship, was wonderfully pleasant. The "Canada" arrived at Havre December 21st, the passengers being directly transferred to the cars of a special train for Paris, where they arrived at 4 P. M. It is but a matter of simple justice to state that the expedition with which the children were placed under treatment, as well as the saving of the writer and them from any amount of extortion, was largely due to the kind and continued attention of Mr. J. H. Haynie, whose very interesting and complete letters have appeared as from the "Special Paris Correspondent," in the *New York Times*.

The children were at once taken to a hotel, from which they were subsequently removed in order to give them every comfort and care possible. The writer immediately proceeded to M. Pasteur's laboratory, and induced him to place them under treatment that very evening, for it seemed in this case that "time was (not only) money," but might be life as well. Not being a physician, and the operation involved being a surgical one, M. Pasteur does not do it, but has it done by Dr. Grancher, Professor in the University, and the most noted clinician in children's diseases of the present French school. It is scarcely necessary to say that Grancher, like Pasteur, gives his services free of all remuneration so far as this treatment is concerned, save the grand satisfaction of devotion to the salvation of the race from one of the most terrible diseases known to man.

The inoculation, or rather the introduction of the preventive material, is done with the ordinary hypodermatic syringe, the point of inoculation being the umbilical region. The operation is never done on the same side two days in succession. For children under twelve or fourteen years old one-half a syringeful of the fluid is used, for adults nearly the entire contents. The instrument is never emptied completely, one division of the piston being always left. This is probably done so as not to inject the thickest part of the contents, for the material is not filtered. One would expect to see some irritative reaction following the injections, but this does not generally result in the case of the first five or six, but with the last two or three, especially the very last, when the most active virus is used, a distinct hyperæmia at the point of inoculation resulted, which disappears in the course of forty-eight hours. No disturbance of the functional activities followed in any of the children. Whether or not any augmentation in the temperature occurred it was impossible to ascertain from the unsatisfactory hotel conditions under which they were first placed. The number of inoculations varies in general from ten to fourteen, according to the age of the patient and the irritative reaction following the introduction of the stronger virus toward the end of the treatment.

The treatment began December 21, 1885, and ended January 1, 1886; the children were, therefore, inoculated *eleven* times, with the exception of the youngest, Eddie Ryan, who received the virus but *ten* times.

The children sailed from Havre on the evening of January 2, and arrived in New York January 14, 1886, during the whole of which time they were perfectly well.

M. PASTEUR'S DISCOVERIES.

Pasteur assured me that he had never been able to isolate, cultivate, and produce a microbic virus capable of producing rabies in any animal. He assumes that a specific microbe must be present, but neither he nor his extremely able assistant, Dr. Roux, has been able to prove its existence. It seems to me to be one of the failings of Pasteur to have no confidence in the correctness of any work done by others except in his own laboratory. While in Paris a communication was received at the Academy to the effect that Fol, of Geneva, had succeeded in staining a specific coccus in the cerebral tissues of rabid animals, and had cultivated it and produced rabies with it. Whether or not this is correct, I have no means of judging, not having seen the original communication

from Fol, but it was at once asserted to be "impossible" in the laboratory of M. Pasteur, simply because they had not been successful in the same direction.

Such things do not deteriorate from the grandeur of the work already done, which began with the study of the ferments with reference to beer and vinegar, followed by the researches upon the silkworm disease, which have resulted in saving millions of dollars to France. Pasteur next turned his attention to some of the contagious diseases of animals, the first being fowl cholera, then anthrax, rouget, and finally rabies. The first three of these are known to be due to specific microbes. The work of Pasteur has not, however, been that of a bacteriologist in the strict sense, but, filled with the idea that a preventive virus could be made from the elements of such diseased organisms, he has worked more from the methodical standpoint of the chemist than from that of the bacteriologist. Still, with anthrax and fowl cholera he has shown that a virus, or rather two, can be obtained capable of producing a period of immunity for at least one year (anthrax), and for hog cholera, a disease of far more interest to us in America, he has also shown that a virus can be prepared which will give the inoculated animals a certain degree of immunity. With reference, however, to hog cholera, the results are by no means so satisfactory at present as in anthrax. There seems to be a far greater difference in the susceptibility among the different breeds of hogs, with regard to the virus, than in cattle with anthrax. Much may be done in this field yet, for the work of experimentation has ceased at Pasteur's laboratory since the death of the lamented Thuillier, the whole time of those laboring having been given to the study of rabies.

Pasteur seems to have found that every virus *may* be rendered a vaccine under some peculiar manner of treatment; such as the continued exposure to a certain degree of heat for a given time, or to the action of the air, or to desiccation. Bacillus anthracis, for instance, develops spores at a temperature of 37° C., but at over 40° this spore development ceases, there being a very rapid development of very short rods by fission. It has been found that if a spore cultivation of bacillus anthracis is sown in bouillon placed in a thermostat at 43° C., and kept clear, that, notwithstanding the fact that a development of rods occurs, the fluid gradually loses its virulence until, at about the fifteenth day, it causes no effect upon an animal that it would at first kill. Such a bouillon constitutes a primary vaccine against anthrax; one that has been exposed to the same degree of heat for about nine days constitutes a secondary, and a freshly sowed one of one day old at a still lower temperature, constitutes the primary vaccine.

Now here comes the peculiarity of all these artificial vaccines which constitutes fully as great a discovery on the part of M. Pasteur, as that of their practical application, viz.: Each virus retains the same virulency so long as we continue making artificial cultivations in bouillon from it. Having established the fact that a bouillon cultivation of bacillus anthracis had either a negative or very weak action after exposure to a heat of 43° C. for fifteen days, it has been found that, with due precautions against adventitious pollution, we can go on and seed bouillon flocks indefinitely from the primary one, and always have a virus of the same degree of activity. The same is true of the secondary, or stronger, and the tertiary, or strongest vaccine virus. On the contrary, if we take a rabbit and inoculate with this primary or weak vaccine virus, and then go on directly from one rabbit to another, it has been found that in course of time we again arrive at a material having all the characteristics and virulency of the original and natural material.

Another singular fact has been established by Pasteur, with regard to the etiological elements of several diseases. In rabies he has found that when the same material from a rabid dog is carried through monkeys it soon loses its virulency, while if carried through rabbits its activity is augmented. We shall return to this subject immediately. In hog cholera, the infectious elements become ameliorated in virulency when passed through rabbits, but augment when passed through pigeons.

Here, again, we come to the same rule: an artificial cultivation made in bouillon from one of these rabbits or pigeons which killed at a certain number of days, retains that characteristic so long as such cultivations are made, but the moment we again carry it through a series of either animal, it soon follows the course which has been found peculiar to the species used.

I will close this part of the subject with a few remarks of the impression made upon me by M. Pasteur, and about his laboratory, and then return to the consideration of the preparation of the vaccine material used in his anti-rabic inoculations.

M. Pasteur is sixty-three years old. He is a short, thick-set person, about five feet six or seven inches high, with straight black hair, a little sprinkled with gray, and short-trimmed whiskers of the same character. Some few years since, he had an attack of paralysis which affected his left side somewhat, so that the movements of that side are not as free as those of the other. In some ways he reminds one of the late General Grant. He is not much of a talker; has in general rather unemotional features, but has a pair of kindly, dark eyes, with heavy eyebrows. From casual observation or without sufficient acquaintance, under peculiar conditions, one would never be led to think that a man so apparently unemotional possessed a tenderness and emotional sympathy far beyond that of ordinary women. When babes or very young children displayed exceeding fright after the first inoculation, when brought each succeeding day, one did not have to watch very closely to see the pearls of sympathy gather in the master's eyes.

It would be unjust to Pasteur not to enter our earnest protest against an impression that has gained more or less extension over the world, viz., that he is exclusive, that he does not publish his methods and keeps them only for himself and those connected with him in work.

In this regard Pasteur's position has been exactly what Koch's was when connected with the *Reich's*

Gesundheits Amt. Neither of them was in the position of teacher; the former had his laboratory and government aid that he might proceed in a certain line of research which, he had become convinced, would be of immense value to the agricultural interests of the country. Communications have been occasionally made to the Academy, as circumstances warranted, regarding the nature of the work and how it has been done, but it was not Pasteur's mission to teach, and it appears as if he had never had sufficient leisure to write any extended works. But, as he has himself said, "it is all in the *Comptes Rendus*," even to rabies. The same is true of Koch. While in the position mentioned, he was appointed to do certain work in connection with given diseases. The German Government, recognizing the demands of the scientific world, promoted Koch to a professorship in the Berlin University, with the probable result that while an inferior man could have equally well served in that position, the world will suffer in the interference thus made in the work of one of its most noted investigators.

Pasteur, while not the author of vaccination, may be truly styled that of the Vaccine School of Research. Another, which will divide the honors with it, is known as the Bacterial School. Both of them are engaged in the work of Preventive Medicine. The school established by Pasteur is certainly limited in its practical application, while the other, which is more of a Teutonic production, is almost limitless in the application to the prevention of disease. The one is direct in its application, the other indirect. The one is simply practical, the other both practical and philosophical, for the proper application of the teachings of bacteriology to the needs of man, requires the most exact study of all the various phases of sociology, climatology, etc.

THE LABORATORY.

The laboratory of M. Pasteur is situated upon the grounds of École Normale, the entrance being No. 45 Rue d'Ulm. It is a one-story building about one hundred feet long, with cellars under its entire length. One is surprised at the number of rooms, closets, etc., that it contains. In a small wing on the left is the entrance, to the left of which is the private room of the savant. To a person who has worked in the modern laboratories of Germany, that of Pasteur appears to be very parsimonious in its fittings. In fact, no better evidence is needed to support the assertion previously made, that the work done here is more from the chemical point of view than from the bacteriological, than the sparsity of paraphernalia used in the cultivation and study of bacteria. On the other hand, this very fact only goes to place more strongly in view the wonderful character of the presiding genius.

The one great medium of culture here is bouillon. I could see but little evidence which tended to prove that much attention was given to the study of bacteria from the biological point of view and their relation to, or, better, deportment in different culture media. On the other hand, such are the delicacy and exactness of technique that have been acquired by the assistants of Pasteur, that they may soon arrive at comparatively pure cultures in fluid media. As just stated, bouillon is used for almost everything, even where other persons would resort to distilled water, for there are no conveniences here for making the latter.

Pasteur and Chamberland have perfected the most wonderfully perfect clay filtering tubes I ever saw. By the use of these, under condensed air pressure, they can at once prepare water, bouillon, blood-serum, or even saccharine solutions, and have them entirely free from germs or spores of any kind, without recourse to any further sterilization by means of heat; years of experience have proven the correctness of this assertion. The saving of labor thereby, as well as time, is something that cannot well be calculated. These filters should be introduced into this country for domestic use as well as laboratory work, as I am sure that American ingenuity has never produced anything equal to them.[1]

On the ground floor we find first a photographing-room, which is used exclusively by the first assistant, Dr. Roux. Of Roux's photographs of bacteria, no person can have any conception who has not seen them. They are simply wonders of exactness, as much superior in definition and outline to those of other micro-photographers as the diamond is to charcoal. Roux is an entirely different kind of man from Pasteur. The latter is reserved, and one looks in vain for any indication of enthusiasm, in place of which he sees dogged determination. Roux, on the contrary, is one bunch of nervous energy, with no lack of perseverance marked in his countenance. He is a tall, slim fellow, who shows the indications of hard work and overtension in every expression and movement. The grasp of his hand at once expresses to you earnestness and sympathy, and if he finds you educated and interested, there is nothing that he will not do to make clear everything you desire to know.

The second assistant is a graduate of the École Normale, a M. Wasserzug. The name would indicate a German, but he would deny it, and tell you he was an Alsace Frenchman, yet I was pleased to find him utterly free from any dislike of his German neighbors—in fact, he spoke of them with the greatest earnestness, and was especially desirous of hearing everything possible of Robert Koch and his methods. He is a young man, more German than French in energy and character, and it was mostly through his personal attention that I obtained the knowledge I gathered at this laboratory.

As we leave the photographing-room, we pass into one in which we find the monkeys which have been inoculated, and thereby attained immunity from rabies. From their friendliness and good health, one would never realize that each of them had been put through a most trying ordeal, for they have all been inoculated with the most virulent rabid virus. The next room is used for all sorts of operations upon animals. Then comes a hallway from which we go down to the cellar, and also from it into the main laboratory. One of the most striking things one sees is the immense variety of flasks, tubes, balloons, etc., of glass, with tubes extending from them, and necks twisted into almost every imaginable shape. This certainly

[1] See THE MEDICAL NEWS, June 6, 1885, p. 627.

indicates that such experimentation to find the most favorable forms of vessel that can be used to prevent pollution, when the contents are being inoculated, must be very expensive. So it would be were these things all ordered from a glass factory, but here we find a most practical idea, which we should follow here if we ever have laboratories for the same purpose—*i. e.*, one of the servants of M. Pasteur is a glass-blower, and makes almost, if not all, this kind of material used, certainly all of the smaller and more complicated varieties. The light in this building is as perfect as any one could wish, as the rooms have large windows, and the main room has them on both sides.

In the cellar we find a room for the rabbits that are used in producing the rabid virus only; they are all kept in small wire cages, two in each. Artificial rabies in rabbits is not characterized by any of the ferocious symptoms which we have learned to dread in the dog. They do not appear to labor under any cerebral excitement whatever; they do not bite or fight, but simply suffer from a slowly progressing paralysis. Whether they have tetanus or not I do not know, but certainly they do not fall into any spasms on disturbance. In another room we find animals used in the study of anthrax, and so on for hog cholera, etc. As I left, Dr. Roux was beginning the study of material from the so-called enzoötic abortion in cows, a disease which causes much loss to cattlemen all over the world.

The dogs were formerly kept here, but becoming "disturbers of the peace" they have been removed to an especial building on a neighboring street. They are all kept in very securely made iron cages. Here is a fine opportunity to study canine rabies in all its stages and varieties. Upon the same grounds is situated the building in which is manufactured the anti-anthrax virus, which is being called for all over Europe.

One of the best points to be followed, which can be seen here, is, that each servant has but one kind of work to do. The assistants have nothing whatever to do with the preparation of any kind of virus after the methodic has once been completed to Pasteur's satisfaction. They are continually employed in completing some process or opening up new work. One man inoculates all the rabbits for rabies and prepares all the virus to be used in the inoculations; while another makes anthrax vaccine, and another the cultures of hog cholera. I have never seen laboratory work so well systematized or go on with so little jarring, and few men in this country have had better opportunities for judging.

What supports all this? The government of France! For this purpose M. Pasteur at present receives 50,000 francs per year, but from all that I have seen it is very doubtful if this amount fully covers the expenditures, as he is a person who would never stop to think of his own pocket when more means were necessary to arrive at the completion of some object by which his country's interests would be advanced or human suffering lessened.

THE PREPARATION OF THE VIRUS.

Pasteur's studies upon rabies began in the fall of 1882. The first human being to be inoculated was the boy Joseph Meister, on the 7th of July, 1885. The real grandeur of this work cannot well be expressed in language. The intense responsibility, the almost death like pressure which must have weighed upon the brain of Louis Pasteur when he made this, his first experiment upon a human being, can only be appreciated by one who has become acquainted with canine rabies in its terrible violence, and hydrophobia in its unspeakable tortures, and further with the entire details of this preventive treatment, how it has been arrived at; such a person, I say, is the only one that can appreciate all Louis Pasteur has been through.

I do not know that it would not be possible to have brought home some of Pasteur's material; it could certainly have been done by the aid of rabbits on board the ship, but I did not ask for it for just one reason, and that is, that I do not consider either myself or any other person would be justified in trying to inoculate his own species, before he had himself gone through the entire work by which Pasteur has arrived at his present confidence, and by similar and repeated experiments upon dogs, have become as well acquainted with the action of his own material as Pasteur is with his.

It is well known that the saliva of the dog has always been looked upon as the essential medium of infection. It is equally well known to every practical bacteriologist, that no more difficult substance could be taken from which to isolate a specific microbe than this saliva, especially, as is probably the case, if this microbe be a coccus. From his observations of clinical phenomena, Pasteur concludes that the specific elements of rabies are to be found in a pure condition in the material of the great nervous centres, brain, and spinal cord, more easily than elsewhere. Experience has proven the correctness of this conclusion, but it still seems doubtful if we shall not also find the same elements in an equally pure condition in the large salivary glands, on the side and under the jaws, as in the brain. The very fact that this saliva is the usual medium of communication of the disease to other animals indicates this.

I have been told that for his cultivation of the microbe, which he claims to be specific, Fol used the fluid he could squeeze out from the fresh brains of sheep. To my mind, the best and most natural way to obtain a medium for the cultivation of the specific microbe in this case, if one thought he had found it, would be to dissect out the parotid duct on each side of the jaw of a large dog, and have its secretion received in appropriate vessels. I would also use cattle for the same purpose. This material can be sterilized in its natural condition, and also made into a solid medium by the use of gelatine.

However, Pasteur has found the brain-substance to answer every practical purpose; from it he prepares an artificial virus, without any direct knowledge of the existence of a specific bacterium, as is the case in the vaccine we obtain from calves. Looking upon the brain as the chief seat of this material, it was but natural that he should also select that organ as the point of inoculation for his future experiments. The supposition proved correct. Every dog thus in-

oculated from the brain of another rabid dog died in an average period of fourteen days. This fact established, the next step was to find a means of mitigating this material, and a method of using it as a preventive medium.

Not having isolated any specific bacterium, it is evident that the means used in the preparation of the anthrax virus would not be available. Hog cholera had, however, given another indication, which, if followed, might lead to valuable results—*i. e.*, the fluid elements of that disease taken directly from a sick hog, one that had been dead but a short time, if carried through rabbits loses its virulence, but increased in the same when carried through pigeons. It was but natural that Pasteur should desire to try this cerebral extract upon monkeys, as next in kin to man. We can well imagine his astonishment at finding that even the most rabid virus caused no serious disturbance, and that if the inoculations were made through a very short series of monkeys the virus becomes powerless, even upon dogs. Now here he sat upon the apex of a most difficult horn of dilemma. Here was, indeed, a means of preparing a primary rabid vaccine, but where on earth were the monkeys to come from?

This method, self-evidently, had to be given up. Had he only had the microbe isolated and cultivated, and produced this monkey rabies with it, he would have found his preventive virus much sooner than he did.

The monkey not being available, it was but natural that he should turn to that invariable object of vicarious experimental sacrifice, the rabbit. Here he was again struck by a very singular phenomenon. After experimenting for some two years, and using about 2000 rabbits, he satisfied himself that if one inoculates a primary rabbit in the brain with similar substances from a rabid dog, that that first rabbit becomes rabid in just the same time a dog would if treated in a similar manner; the next thing was to discover what would be the result of carrying such a material from rabbit to rabbit in the same manner as had been done with monkeys. This being done with innumerable series of rabbits, it was found that after thus inoculating from twenty to twenty-five rabbits that the rabid material had so degenerated in virulence that it killed each rabbit in seven days. This same material acted in the same manner when inoculated upon dogs. Hence Pasteur could almost have claimed to have produced a new disease out of an old one. Now comes the question, How can this material be diminished in virulence?

The brain-substance could not be handled very well, so that the next step was to try the spinal cord, the most accessible portion being the medulla oblongata. This was found to act exactly as the cerebral substance had done. The next step was to try the effects of heat and cold upon it in a dry atmosphere; the microbes, if present, must thus be deprived of one of the chief essentials to their existence. The dry air was easily found by placing lumps of desiccated caustic potash in the bottom of glass jars. The corks were made to fit very neatly, and were of the best quality. The medullas were then removed with the utmost care to avoid pollution with any foreign material, and hung by a thread attached to the corks in the jars.

The following results ensued: When kept in a cool place, the medullas retained their virulence a long time, which could be increased by filling the glass jars with carbonic acid gas. If, on the contrary, they were kept in a room with a constant temperature of 20° C., it was found that they lost in virulence with each day's action of the dry atmosphere and the surrounding heat, until after, or on, the expiration of fourteen days, a medulla was found which produced no perceptible action upon rabbits or dogs when introduced into the brain.

It was now necessary to discover if each one of these medullæ possessed any constancy of action according to the time they had been thus treated. One can hardly realize the amount of work that had to be done, and of the inoculations that were made before this fact could be considered as established. Finally, it again resulted as in other vaccines under methods of treatment: *that any number of medullæ of approximately the same thickness had the same action upon animals, if introduced into the brain, after having had the same amount of exposure—i. e.*, a canine medulla would cause rabies in a rabbit in 14 days; a super-virulent rabbit medulla would cause rabies in a rabbit in 7 days; after the latter had been taken out and subjected to treatment for about two weeks, all action disappeared. A slight action followed the use of one of 12 days, more of one of 10, and so on more and more until one of 1, 3, 4, or 5 became more and more virulent.

It must be borne in mind that these results were all obtained by inoculating a single animal from a given cord of a certain number of days' treatment.

The next thing to do was to try the effect of the serial introduction each day, or at intervals of a day or two, of a series of three separately treated medullæ from rabbits, beginning with a cord that had been treated for 14 days, and ending with one freshly removed from a rabid animal.

What was the result?

I should like to know what Pasteur's feelings were at the moment when he had found that no rabies followed in his animals. No man can portray them!

Then came the revelation before the Academy; the doubts and sneers; the appointing of a committee to watch and prove: the treatment of twenty-five dogs as a test case; the control experiment with twenty-five others that had not been treated to the bites of rabid dogs; the anxious waiting for time to elapse. Then Victory!

The curtain should be dropped here and the story ended, but it is not. Then followed experiment after experiment until all was as safe as the simplest injection of a harmless material, and then came the tests.

It will be seen from the following statement that the child was daily inoculated with a piece of spinal cord from a rabbit of ever-increasing virulence. The cords were subjected to the action of a dry atmosphere a shorter and shorter period after their removal from the rabbit, until finally a cord comparatively fresh—that is, only one day old—was used.

The boy Joseph Meister. The inoculations began on the 7th of July, as follows:

Date.	Time of inoculation.	Date upon which rabbit was inoculated from which the spinal cord was taken.	No. of days the cord was dried after removal.
July 7	9 A.M.	June 23, 1885	14
" 7	6 P.M.	" 25, "	12
" 8	9 A.M.	" 27, "	11
" 8	6 P.M.	" 29, "	9
" 9	11 A.M.	July 1, "	8
" 10	11 "	" 3, "	6
" 11	11 "	" 5, "	7
" 12	11 "	" 7, "	5
" 13	11 "	" 9, "	4
" 14	11 "	" 11, "	3
" 15	11 "	" 13, "	2
" 16	11 "	" 15, "	1

The method of inoculating rabbits is simply that of ordinary trephining, the instrument being smaller and having the diameter of an ordinary leadpencil.

The fresh medulla is rubbed off with bouillon, as later described, and about two divisions of the piston of an ordinary hypodermatic syringe of fluid injected under the meninges; the end of the kneedle must be curved. The skin is then sutured as in any other case.

At the same time the child was inoculated, another rabbit was immediately afterward inoculated with exactly the same material used on the child. This is done with the virus used on every person inoculated by M. Pasteur in order to keep the experiments under the most exact control. The result is thus reported by M. Pasteur:

The medullas or cords which were removed from rabbits and inoculated on the child July 11, 12, 14, 15, and 16 respectively—that is, which had been desiccated seven, five, four, three, two and one day—all gave positive results when reinoculated upon rabbits in a degree corresponding to the time they had been dried—*i. e.*, the freshest cords caused the appearance of rabies in the rabbits in seven and eight days, while the others gave results later and the driest gave none.

The fresh cords having therefore caused the outbreak of rabies in the regular time, which the most virulent cords from rabbits had previously done, and the same not having caused any disturbance whatever to appear in the boy Joseph Meister, Pasteur concludes "that the boy has not only escaped a future outbreak of canine rabies, but also that the systematic inoculation has so prepared the elements of his body that they were enabled to resist the action of still more virulent rabbit rabies."

This virus from each of the cords is made by taking a small piece about one-fourth of an inch in length and rubbing it up with a glass rod and adding sterilized bouillon, drop by drop, until the fluid and mass are well mixed, and about a tablespoonful of bouillon added. It is not filtered, and some of the substance necessarily settles to the bottom of the glass as a sediment.

The virus is made fresh every day, the glasses containing it being prepared about 10 A.M., the inoculation occurring about 11 A.M. While waiting, the glasses are carefully covered so as to prevent anything falling into them from the air. As no cord is used a second time (that is, as a cord which if used to day would be one that had dried six days, but which if put back again into the bottie would be a seven-day cord, and so on), it is evident that a number of rabbits must be inoculated daily in order to keep up the supply of very virulent cords, according to the number of patients present, and also according to the period of their treatment; newly arrived patients requiring cords that have been dried fourteen days, and older ones those of corresponding freshness.

I have thus endeavored to place Pasteur's method as fully before the readers of THE NEWS as possible. It is easily to be seen that the preparation of such material is not a matter that can be done either by private practitioners, or even at ordinary hospitals.

SOME PRACTICAL APPLICATIONS OF PASTEUR'S METHODS.

Muzzling dogs is powerless to prevent the extension of rabies among them.

The best way to prevent rabies in man is to prevent it in dogs. This can be done in the following manner:

1st. Each State should have a State Laboratory in connection with its Board of Health, in one department of which such cords should be constantly prepared, and the physicians and veterinarians of the State educated in their use on animals.

Every endeavor must be made to discover the microbe of this disease, and an artificial virus from the same, which can be used in the same manner and as trustworthy as that at present used by Pasteur.

2d. The next step is to discover, by direct experiment, how long the immunity from rabies can be trusted to continue in dogs after they have been treated as above described.

3d. Laws must be made conformable to the above, and record books kept in each city. Every dog must not only be inoculated but licensed, certificates of which must be filed with the proper authorities, and presented each year when the new license is applied for.

Experience only can tell the time in which such certificates must expire and be renewed.

4th. All dogs not inoculated must be killed at once.

This is practicable; and only in this way can we do away with canine rabies, and eventually remove all danger of hydrophobia from our citizens.

NEW YORK, January 20, 1886.

IMPACTED GALLSTONE IN THE DUCTUS CHOLEDOCHUS.[1]

BY F. LANGE, M.D.,
OF NEW YORK.

ABOUT the middle of July Dr. Heppenheimer, of this city, sent to me Mrs. B., 37 years of age, married. A previously healthy woman, about six months ago she commenced to suffer with severe pain in her right side, over the region of the liver. Sometimes she suffered so severely that she was forced to cry out. The pain was also located toward her back.

[1] Read before the New York Surgical Society, Dec. 22, 1885.

About one month later jaundice set in, and has since remained. Loss of appetite, vomiting, mostly in the morning, and sometimes of a greenish material. The constant pain has weakened her very much, though her nutrition is not so much impaired as one would expect after such protracted and severe suffering. Her color is of a deep greenish-yellow; skin flabby. The expression of her face I should describe as languid and dissatisfied. She is feverish, and often feels chilly, but has never had a marked rigor; stools light in color; bowels tend to constipation; urine icteric; constant pain in her back; sometimes pain in epigastric region; entire loss of appetite; often nausea. As the principal result of physical examination an enlarged liver presented itself. Fulness from fourth intercostal space down to one inch above umbilicus, and from that point obliquely down to the anterior superior spinous process of the ilium the left lobe seems to be proportionally much enlarged. Four inches to the right of the median line a mass about the size of an orange is felt just below the border of the liver; its position, shape, and resistance make it correspond to an enlarged gall-bladder; other organs apparently healthy.

On the 23d of July a longitudinal incision was made about six inches in length through the external border of the rectus abdominis; peritoneum opened; gall-bladder not adherent to the abdominal wall; its color light yellowish-green. By aspiration about one and a half pints of a rather thin purulent fluid were extracted; toward the end of the aspiration the same showed a more free admixture of pus; microscopically pus-cells and cholesterin crystals were found. The amount of fluid withdrawn was much more than at first seemed probable from the size of the tumor; that proved, of course, a considerable dilatation of the gall-ducts beyond the gall-bladder itself. After turning the patient on her right side, and pulling the now flabby gall-bladder partly before the abdominal wall while interposed sponges secured closure of the peritoneal cavity, a free incision was made into the gall-bladder, from which more fluid escaped. Neither finger nor instruments, curved as well as straight, reached a stone, though the cavity was explored to the depth of about eight inches. After having enlarged the abdominal wound by an incision at right angles to the first, I passed my hand along the lower surface of the liver toward the duodenum, and there was able to distinguish by the touch a hard, round body. In order to get at it with ease, I had to separate the colon from its physiological and pathological adhesions to the lower surface of the liver, and then was able, by gentle pressure and manipulation, to push the stone back into the gall-bladder, whereupon it was easily extracted. Hemorrhage was insignificant on account of double ligature before cutting adhesions, which were most extensive at the lower surface of the gall-bladder. The stone was about the size of a small walnut, oval-shaped, smooth, without facets, consisting of pure cholesterin.

The patient was then again turned on her right side. The bladder was irrigated with a weak solution of boro-salicylic acid; the gall-bladder closed by triple rows of Lembert sutures, and, finally, the abdominal wound sewed up by deep peritoneal and superficial sutures; light dressing of iodoform gauze.

The operation lasted more than two hours, and the patient was in collapse immediately after it, but soon rallied, and in the afternoon had a moderately good pulse, with a temperature of 101°–102°.

The principal features of the following days until her death, which occurred on the morning of the 26th, three days after the operation, were these:

Vomiting, gradually increasing in severity, sometimes with pus; on the second day, with free admixture of blood; no bile. One large clot, about three inches long, looked as though it must have come from the bile-duct; in one place it consisted mostly of fibrin, and was somewhat constricted; the remainder being apparently a more recent coagulum. Microscopical examination showed much columnar epithelium caught in it. Urine became quite scanty, containing albumen and epithelial and hyaline-granular casts, which were not present before. Abdominal pain and tympanites moderate; temperature gradually increasing to 104° on the third day. The fact that the vomit contained no admixture of bile, and the stools, which were occasionally passed, had retained their grayish color, led me to assume that in some way the flow of bile into the gut might be interfered with. I therefore, on the 25th of July, opened the abdominal wound, and finding safe adhesions between the gall-bladder and parietal peritoneum, opened the former, giving exit to a considerable quantity of green, healthy-looking bile. The bad symptoms continued in spite of this, and on the morning of the 26th the patient died, having a temperature of 108.2°; quantity of urine during the last twenty-four hours was twelve ounces, about the average of the days before.

The autopsy made on the same day was only conceded in reference to the abdomen. The liver had, within those few days after the operation, returned to almost its normal size. The whole system of gall-ducts was much distended; the ductus choledochus, which might have admitted a finger, ended with a round lacuna within the walls of the duodenum, where apparently the impacted gall-stone had been located. Several small openings led from here into the gut, which all along the small intestine was filled with a brownish, chocolate-colored material, similar to that vomited during life. The essential points of the microscopical examination, which I owe to the kindness of Dr. Porter, pathologist to the Presbyterian Hospital, were these: "Hepatic cells in a state of granular and fatty metamorphosis, which had completely destroyed their identity. There were also marked biliary pigmentation and slight interstitial thickening. The sections of the liver presented the appearance common to acute yellow atrophy of the liver. Sections of the kidney showed the most advanced stage of acute parenchymatous metamorphosis. The epithelium was swollen and the protoplasm destroyed and replaced by granular particles and fat droplets, the latter predominating. The points of discoloration upon the intestine appeared to be ecchymotic.

"The cause of death in this case may be ascribed to the toxæmic condition produced by the advanced

metamorphotic destruction of the hepatic and renal cells."

I have been, and am still of the opinion, that an acute septic peritonitis might have caused all the above changes, though nothing more of an exudation could be discovered on the surface of the peritoneum than is necessary to account for an adhesive inflammation on the separated parts. There have been, however, cases of a peritonitis septica under observation where the macroscopic changes were either absent or quite insignificant. From a practical point of view the following considerations may be allowed:

1. Would it eventually be preferable, as recommended and done by others in cases of cholecystotomy, first to establish a fistula of the gall-bladder, operating *en deux temps* in order to be as secure as possible against infection of the peritoneum? If then after free opening of the gall-bladder the stone cannot be reached, apparently on account of the curved course of the bile ducts, would it eventually be the safest plan to leave it alone and trust to its final spontaneous perforation into the intestine? In our case, as shown by autopsy, this natural process was already inaugurated. In spite of all possible care and precaution it is very difficult, during an operation lasting several hours, to prevent the entrance of infectious material. I need not to say that antiseptic measures were used to my best knowledge in my case.

2. One might, before opening the gall-bladder, search for the stone by palpating along the cystic and common duct. If found near the duodenum, one could try to dislodge it with the intention of pushing it back into the gall-bladder. If one succeeds in doing so, the operative procedure first mentioned might follow.

3. To excise a gall-stone impacted in the common duct *in situ*, seems to me, on account of the deep situation and inaccessibility of the operating field, and the probable impossibility of preventing the contents of the duct from entering the peritoneum, a hopeless way of proceeding. Should it prove to be impossible to push the stone back or to extract it from above, an artificial communication between gall-bladder and intestine, according to Winiwarter's idea, might come into consideration.

If I were to operate a second time under the same conditions as those above described, I should first puncture the gall bladder, and with a fine needle withdraw as much fluid as possible. I should then try to define the point of obstruction, and, in a case like mine, push the stone into the apex of the gall-bladder. Then I should close off the peritoneum by sutures around the partly protruding gall-bladder, and after that is achieved, open the latter, extract the stone, and not close the gall-bladder until the spontaneous entrance of bile into the gut had manifested itself.

Mr. President: All these questions can only be settled by experience. I purposely omit quoting those valuable contributions which have lately been offered relative to this subject. My case just recorded, through the location of the stone and the difficulty of getting at it, has some peculiarities of its own, and may form, in spite of its unfortunate end, a valuable addition to our present knowledge.

THE ABORTIVE TREATMENT OF BUBO.

By PHILIP F. HARVEY,
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The article entitled "Venereal Bubo," by D. T. Armstrong, Ph.D., M.D., etc., in The Medical News of December 5, 1885, merely refers to the injection of dilute carbolic acid in the abortive treatment of that painful affection, but omits all mention of the method originally described by Dr. Morse K. Taylor, U. S. A., in *The American Journal of the Medical Sciences* for April, 1882. Dr. Taylor, in his paper, cites a number of cases in which his treatment ended in speedy and complete recovery, and for over three years I have treated all cases of bubo that have fallen under my charge in the manner he describes. Having seen no mention of his method in the medical journals, and as some inquiries among my surgical friends show that it is not as generally known and practised as it should be, I am induced to call renewed attention to it by briefly reciting some of my cases.

To save the trouble of referring to Dr. Taylor's original article, I will briefly recapitulate the successive steps of his method: The skin covering the bubo is first chilled with a spray of ether; the enlargement is then grasped between the thumb and finger of the left hand, held firmly, and the point of a hypodermic syringe thrust obliquely into the centre of the gland, to a depth equalling about two-thirds of the narrowest diameter of the tumor. The syringe being charged with an 8 gr. solution of carbolic acid to the ounce of distilled water, twenty to thirty minims are slowly injected. A bag of shot or sand, weighing about three pounds, is then placed on the bubo and held in place by tapes; although in favorable cases this may not be necessary. The stage of the disease at which the injection yields the best results is when the gland has attained a sufficient size to admit of the free infiltration of the injected fluid throughout its structure. At such time, one thorough injection is usually sufficient to effect a cure, and this without the patient foregoing his usual avocation. When the gland is smaller and harder, it may be necessary to repeat the injection once or oftener.

Case I.—In the spring of 1882, Pvt. E., 11th Inf., was affected with double inguinal bubo arising from chancroid. He had been under the customary treatment for some weeks in hospital, and one gland had suppurated, but was not open; the other was large, but fluctuation could not be detected in it. The bubo containing pus was aspirated, and the cavity hyperdistended with carbolic acid solution. Aspiration failed to detect pus in the other bubo, and it was injected with 30 minims of an 8 gr. to ℥j solution of carbolic acid. Marked improvement followed this treatment, and two more injections sufficed to effect a perfect cure.

Case II.—S., colored, servant. Male. Applied to me in April, 1882, for treatment for a recent and hard inguinal bubo. It was injected in the manner described, and the patient was not seen again for three days. The bubo was then injected, and complete cure followed in a few days without further treatment. This man did not lose an hour from his work.

Case III.—Pvt. M., 25th Inf. (colored). Affected with a bubo that had been treated by iodine and poulticing for one month. It was rather large, somewhat soft, and quite painful, and was evidently on the point of breaking down. The man was taken into hospital, put to bed, and treated by the abortive method. Three injections effected a perfect cure. Time under treatment, one week.

Case IV.—Military convict. Treated while in guard house. Single inguinal bubo; cured by two injections.

Case V.—Pvt. D., 17th Inf. (white), was taken into hospital July 6, 1882, with double inguinal bubo. The hospital steward having been instructed in the proper mode of making the injection, was directed to administer it in this case. The patient declined to allow the steward to "try experiments on him," insisting that poulticing was the best method of treatment. On the 7th inst., I injected the bubo in the left groin, which was larger than its fellow, and exquisitely painful, notwithstanding the patient's objections. On the following day this soldier requested me to inject the bubo on the right side. He said the pain was at once relieved in the left bubo, and had not returned. No other injections, however, were necessary in this case, and the patient was returned to duty in a few days afterward.

Case VI.—D. S. G., recruit, 21st Inf. (white). Inguinal bubo; right side. Injected March 21, 1883; returned to duty March 22, 1883.

Case VII.—Pvt. J., 25th Inf. (colored). Admitted to hospital in February, 1883, with large and inflamed chancroid; treated with iodoform. Multiple buboes ensued; they were injected on the 11th, 13th, and 16th. Result, prompt cure.

Case VIII.—Pvt. S. P., 25th Inf., chancroid and right inguinal bubo; recent; no pus. Presented August 7, 1883. Injected bubo, using spray and compress. Kept patient in quarters. August 8th, no pain; swelling less; injected a second time. 10th. Bubo diminishing; again injected. On the 15th, the bubo having not disappeared, it was evident that walking about was keeping up irritation. He was therefore taken into hospital and kept at rest until the 25th, when he was fit for duty.

Case IX.—Pvt. J. W., (white) a prisoner, having just arrived at the post, applied September 12, 1883, for treatment. In his left inguinal region there was a large swelling, soft and extremely painful to the touch, and of red, angry appearance. He was wearing a truss over it, as his physician had informed him that he was ruptured. His truss was removed and he was kept at rest until the following day, when his bubo was aspirated, about eight ounces of thick pus being withdrawn; and phenol solution being afterward injected. On the 17th he was admitted to hospital. On the 22d, the pus was again aspirated, and cavity injected to hyperdistention, the fluid being afterward withdrawn. 23d. Pus having again collected, the bubo was freely opened. The resulting abscess ran its course, although I believe it was decidedly shortened by the phenol injections. The man was returned to duty on the 12th of October.

Case X.—Civilian, tailor; July 15, 1883. Chancroid, followed by bubo. Injected twice; no return after second injection.

The above cases were all treated at Fort Snelling, Minnesota. My notes and practice embrace other cases, but the above seem sufficient to establish the value of the method; in my opinion, it is the best mode of aborting or treating bubo that has yet been described. It may answer well in other forms of glandular inflammation, but as to that I have had no experience.

To insure a full measure of success, the following details should be borne in mind and carried out:

1. The time of election is just prior to suppuration.

2. Rest, a laxative, and reduced diet assist in the dispersion of the swelling, rest being the most important adjuvant.

3. The exact point at which the injected fluid should be delivered in the bubo, is a matter of importance; as also its manner of delivery. These conditions can be satisfied, however, by the exercise of ordinary intelligence and care.

1733 G St., N. W., Washington, D. C.

MEDICAL PROGRESS.

Preparation and Properties of Peptone.—In *The Schweiz. Wochenschr.*, xxiii. p. 381, is given the following description of the properties and method of preparation of peptone: 5 kilogrammes of finely chopped lean beef are placed in a porcelain evaporating dish with 5 kilogrammes of water, 150 grammes C.P. concentrated hydrochloric acid and 20 grammes (Witte's) pepsin; allowed to stand at ordinary temperature for one day, stirring frequently; it is then heated in a water-bath, taking care not to heat the mixture to more than 70° C. for one day. The excess of acid is neutralized by sodium carbonate (requiring about 150–160 grammes). The resulting turbid solution is brought up to 10 kilogrammes, 5 kilogrammes of concentrated alcohol added and then put aside for one day to settle. The precipitate is collected on a strainer, expressed and the liquid filtered. After recovering the alcohol the solution is evaporated to extract consistency, poured on plates and dried. Peptone prepared thus is in brown pieces, quite brittle, yielding when pulverized a yellowish-brown powder, soluble in at least 2 parts of water. The yield is about 4–6 per cent. of the meat used. *Properties:* 1. Peptone should be soluble in 2 parts of water; the solution is not gelatinous, and becomes turbid on adding 5 volumes of absolute alcohol; the addition of more water makes a clear solution. 2. A 10 per cent. solution does not become turbid either at an ordinary or elevated temperature on adding nitric acid, acetic acid, ferrocyanide of potassium, or saturated solution of sodium sulphate. 3. Picric acid produces yellow—tannic acid, ash-gray flakes. 4. Sulphate of copper and caustic potash produce a violet coloration. 5. It should yield not more than 2 per cent. of ash when incinerated. 6. If to 20 drops of a 1 per cent. solution of peptone 5 drops of a 10 per cent. solution of calcium bichromate are added, no turbidity is produced; if the mixture becomes turbid, it proves the presence of at least 5 per cent. of glutinous matter. The solution of bichromate of calcium (Freire's test) is made by dissolving

5 grammes of crystallized chromic acid in 25 grammes of water, gradually adding 2 grammes of pure calcium carbonate; after effervescence the solution is diluted to 60 c.c. and filtered through glass-wool. Owing to the rapidity with which peptone is decomposed, it is not advisable to keep it in liquid form.—*Amer. Journal of Pharmacy*, Jan. 1886.

Dangers of Nerve-stretching.—In an elaborate original investigation from Mierzejewski's laboratory, Pauline Tarnowski records the results of an examination of the spinal cord in thirty-six rabbits, in which the sciatic nerve had been stretched in varying degrees. The amount of stretching was estimated from the weights employed—the maximum being eleven pounds. The examination of the cord was made at periods of from twenty-four hours to six months after the operation.

After slight stretching of the sciatic there was an evident hyperæmia of the posterior column of the cord on the same side. Intense stretching was followed by capillary hemorrhage in the posterior column, with secondary sclerosis and atrophy. After extreme traction upon the sciatic, capillary hemorrhage in the corresponding side of the posterior column could be traced to the cervical region.—*Centralb. f. klin. Med.*, December 5, 1885.

New Method of Preparing Fehling's Solution.—M. Schmiedeberg uses mannite in place of Rochelle salt in making Fehling's solution. He claims that the addition of mannite insures stability to the solution. His formula is as follows: Dissolve 34.632 grammes of crystallized copper sulphate in 200 c.c. of water; to this solution is added a solution of 15 grammes of very pure mannite in 100 c.c. of water and 480 c.c. of solution of caustic soda (1.145), and, lastly, sufficient water to make 1 litre.—*Amer. Journal of Pharmacy*, Jan. 1886.

Odorless Iodoform.—Oppler has accidentally discovered that coffee masks completely the odor of iodoform. The roasted coffee is finely pulverized and added to the iodoform in the proportion of from thirty to fifty per cent.

The following formulæ have been given:

Iodoform	2 parts.
Pulverized coffee	1 "

Mix.

Iodoform	3 parts.
Vaseline	30 "
Pulverized coffee	1 "

According to Gillette, one hundred parts of iodoform may be rendered inodorous by the addition of one part of sulphate of quinia, and three parts of powdered wood charcoal.—*Revue de Thérapeutique*, Dec. 15, 1885.

Unilateral Œdema.—A case is reported by Dr. Bassi in the *Rivista Inter. di Med. e Chir.*, in which an hysterical young woman presented the curious phenomenon of an unilateral œdema that appeared with each menstrual period. There was no other derangement of general health, although the patient is described as delicate. The œdema was absolutely limited to the right half of the body, but there was no alteration in the color, the temperature, or the sensitiveness of the two sides, although less irritation was necessary to produce reddening of the skin on the right side. Concurrently with this temporary œdema there were signs of congestion of the lung on the same side, and the right ovary was painful. Complete anæsthesia of both corneæ and of the fauces was observed.—*Lancet*, Jan. 2, 1886.

Diuretic Mixture for Gout.—J. Mortimer Granville, in his recent work on *Gout in its Clinical Aspects*, discards the usual diuretics as irritant, the indication being to "flush," not to stimulate the kidney. For this purpose the most available drugs are ammonium chloride and potassium chlorate. At the same time the decomposition of the sodium urate in the blood may be attempted, and to this end Dr. Granville considers iodine best adapted, exhibiting it with the salts and glycerine, as exemplified in the following formula:

℞—Ammonii chlor.	ʒiv.
Potassi chloratis	ʒij.
Tinct. iod.	♏cxx.
Glycerini	ʒiss.
Aquæ	ad ʒxvj.—Misce.

F. Mistura, cujus sumantur cochlearia duo magna quartâ quâque horâ et aquâ.

Muscle-grafting.—The following conclusions are presented by Dr. Salvia (*Gazetta degli Ospitali*) as the results of his experiments in muscle-grafting.

1. It is always possible to transplant a portion of muscular tissue from one animal to another, differences of species having no effect upon the definitive result of the operation.

2. In order that the muscle added shall become united by first intention, it is necessary that the portion grafted shall exactly fit the wound into which it is introduced, and that the strictest antiseptic precautions be instituted.

3. At the point of union there is developed new muscular tissue with no trace of a cicatrix.

4. The added muscular elements gradually lose their special anatomical peculiarities and so thoroughly acquire those of the animal upon which they are grafted, that after a certain time microscopical examination reveals no point of difference.

5. Muscular function is resumed in a relatively short space of time.—*Revue Médicale*, Nov. 14, 1885.

Pulse Variations in Health.—Bleuler and Lehmann record a series of experiments made upon themselves with a view to determining the results of certain every-day procedures upon the pulse.

The experiments were made in bed, during the morning hours, the pulse was counted for a full minute upon each occasion, and all the accessary conditions carefully noted. The results were as follows:

Drinking warm water or tea increased, while cold drinks diminished the pulse frequency. Application of heat to the skin, effected by additions to the bedclothing increased pulse frequency, which was decreased by partial exposure of the body surface. The difference amounted to from ten to fourteen beats per minute, and the effect endured for from thirty to forty minutes.

During twenty-four hours of fasting, quietly spent in bed, no changes in the pulse frequency were noticed.

Mental activity—in the form of light reading—as a

rule slightly reduced the cardiac activity, and in no case increased it.

Various gastro-enteric sensations—those of heat or pressure in the stomach, nausea, the sensation of slight intestinal tension, especially in the rectum—all increased the frequency of the pulse.

A similar effect was produced by the ingestion of sodium chloride or sodium sulphate, and explained by the fact that these salts produce the sensations in question.—*Centralb. f. klin. Med.*, December 5, 1885.

Etiology of Gout.—In a work which has just appeared on *Gout and its Relations to Diseases of the Liver and Kidneys*, Dr. Roose thus summarizes the causation of the attacks of gout:

1. Uric acid, in the form of sodium urate, is the *materies morbi* of gout.

2. The deposit of sodium urate in the joints is the cause of the gouty inflammation.

3. This substance is produced in excess, as a result of the imperfect transformation of albuminous substances.

4. This imperfect transformation is for the most part due to functional disorder of the liver, or to excessive supply of nutritive materials, or, as often happens, to a combination of these causes.

5. So long as the excess of uric acid is eliminated by the kidneys, decided attacks of gout may be absent; but the symptoms above described as pertaining to the uric acid diathesis are liable to be present.

6. The kidneys are apt to become *secondarily* affected, owing to the irritation set up by excess of uric acid and other products of defective metamorphosis, and by deposits of urates. Primary disorder of the kidney is not a necessary factor in the production of gout.

7. In the majority of cases of chronic gout, increased production of uric acid is associated with defective elimination by the kidneys.

8. The symptoms of nervous disorder in gout are due to the action of the *materia peccans* on the nerve-centres.

The Effects of Tobacco.—In a recent original investigation (*The Physiological and Pathological Effects of the Use of Tobacco.* Phila., P. Blakiston, Son & Co., 1885), which has received the Fiske Fund Prize, Dr. Hobart Amory Hare, of Philadelphia, thus summarizes the results of his experiments upon the effects of tobacco.

1. Tobacco smoking does not decrease the urine eliminated, but rather increases it.

2. Tobacco does retard tissue waste.

3. Tobacco and its alkaloid cause convulsions in the primary stage of the poisoning, by depressing the reflex inhibitory centres in the cord.

4. It causes the palsy of the second stage, by paralyzing (*a*) the motor nerve trunks, (*b*) the motor tract of the spinal cord.

5. That the sensory nerves are not affected by the drug.

6. That nicotine contracts the pupil, by stimulating the oculo-motor and paralyzing the sympathetic, this action being peripheral.

7. That nicotine primarily lowers the blood pressure and pulse-rate; (*a*) secondarily increases pressure and rate; (*b*) thirdly decreases pressure.

8. That the primary lowering of pressure and rate is due to pneumogastric stimulation, associated with vaso-motor dilatation.

9. That the secondary stage is due to vaso-motor constriction and pneumogastric palsy.

10. That the third stage is due to vaso-motor dilatation returning.

11. That death in poisoning from this drug is due to failure of respiration, the action of the drug being centric.

12. That the blood corpuscles are broken up and crenated by the action of the poison.

13. That in death from nicotine poisoning the blood shows changes in *spectra*.

14. That death can be brought about by the cutaneous absorption of nicotine.

15. That tobacco in moderate amounts increases intestinal peristalsis, and in poisonous doses produces tetanoid intestinal spasm.

16. That the liver seems to destroy the poison, although this destruction is participated in by any set of capillaries in other parts of the body.

17. That tobacco smoking increases pulse-rate and decreases arterial pressure.

Tendon-grafting. — MM. Fargin and Assaky have reported before the Société de Biologie the results of their experiments on the grafting of tendons.

Under rigid antiseptic precautions, the transplantation of one inch of tendon has succeeded, not only in animals of the same species, but between different species.

The animals operated upon were dogs, sheep, rabbits, and birds.—*L'Union Médicale*, Dec. 17, 1885.

Potassium Salicylate in Acute Rheumatism — Dr. E. L. Miller, of Eaton, N. Y., recommends the use of the potassium instead of the sodium salt of salicylic acid in acute rheumatism. He claims that the potassium favors the elimination of the worn-out albuminoid products which fall short of being converted into urea in the body; he has used this salt when the stomach refused to tolerate the sodium salt.—*Cincinnati Med. News*, Dec. 1885.

Pilocarpin in Puerperal Convulsions.—Dr. G. T. M'Keough describes three cases of puerperal convulsions in which pilocarpin was exhibited, and draws the following conclusions in regard to the use of this drug:

"When the coma is profound, and has almost extinguished the action of the reflex centres, pilocarpin is a dangerous agent, on account of the impossibility to the patient of getting rid of the enormous quantity of bronchial secretion and saliva which floods the respiratory passages; but in those cases in which the physician is called before the patient has many convulsions—when the poison has not suppressed entirely the action of the reflex centres—when the patient is partially conscious, probably restless, and moaning, or when convulsions have not occurred, but seem imminent,—it is my conviction that we have in pilocarpin a most valuable adjunct in the treatment of this dreaded disease."—*Canadian Practitioner*, January, 1886.

Alcoholic Paralysis.—In the current number of *Brain*, Prof. Dreschfeld has some interesting further ob-

servations on alcoholic paralysis. He has found that Magnus Huss, who is generally credited with having been the first to describe a paralytic form of chronic alcoholism, was preceded by thirty years by Dr. James Jackson in the United States. The latter wrote in 1822. Dr. Dreschfeld has clinically divided this affection into two groups—alcoholic ataxia and alcoholic paralysis—a classification followed by Lowenfeld, Moëli, Schulz, Krücke, and Strümpell. Alcoholic paralysis is a multiple peripheric neuritis.—*British Medical Journal*, Jan. 9, 1886.

Physiology of the Second and Third Stages of Labor.—Schröder, in the *Zeitschrift f. Geb. u. Gynec.*, xi. 2, presents the following conclusions regarding the processes involved in the second and third stages of labor:

During the stage of expulsion, the energetic action of the abdominal muscles is very essential, and, therefore, narcotics, since they calm excitement and diminish pain, are the best promoters of labor. Ergot and its preparations are, as a rule, contraindicated, since the muscles of the uterus contract of themselves sufficiently. During the third stage of labor it should be remembered that the mechanism through which the placenta becomes detached and is expelled from the uterus is a precise one, whilst the expulsion of the placenta from the vagina is not. The control of the uterus by means of the hand after the birth of the child is, therefore, unnecessary. The placenta will, normally, be soon expelled from the uterus through its contractions, without much hemorrhage. We know that this has happened when the uterus becomes smaller and its lower segment swells out over the symphysis. Then by simple manual pressure, above the placenta in the neighborhood of the contraction ring, we may easily, and without danger, completely expel the placenta. In typical cases, the rational and best method of conducting the third stage of labor is to wait until the placenta has been expelled from the uterus, and then resort to manual pressure. When the placenta is expelled after the manner described by Duncan, then the hemorrhage is apt to be greater, and manual pressure not so effective or simple, since the upper border of the placenta often remains for a time attached at the fundus.—*Am. Journal of Obstetrics*, January, 1886.

The Administration of the Hypophosphites in Powder.—Dr. E. C. Morgan, of Washington, states that practitioners frequently encounter patients in whom the ordinary saccharine preparations of the hypophosphites cause serious gastric disturbance, loss of appetite, and interference with nutrition. Individuals suffering from diseases in which hypophosphites are indicated often possess an intolerant digestive apparatus, thus rendering the administration of syrups questionable and occasionally impossible. The writer has, for these reasons, long been accustomed to prescribe sodium, potassium, calcium, iron, and other hypophosphites, in the form of powder, taken dry or stirred in wine, whiskey, brandy, milk, or water. Some of my professional colleagues have doubtless employed these salts in powder and it is for the purpose of directing more general attention to the subject that I write this article.

The therapeutic advantages resulting from the combination of pepsin and various salts of the hypophosphites are apparent, my attention being first called to the fact by Mr. J. S. Tyree, of our city.

The formula can be varied to meet special indications; but a most serviceable combination is as follows (pulv. hypophosphitum cum pepsino (Morgan)):

℞.—Calcii hypophosphitis	. .	5 parts.
Sodii hypophosphitis	. . .	5 "
Ferri hypophosphitis	. . .	2 "
Mangani hypophosphitis	. .	1 "
Pepsini (Boudault's neutral)	.	8 "
Sacchari lactis	. . . .	4 " —M.

This powder should be finely ground and kept, as well as dispensed, in glass. It can be prescribed in bulk, one-half teaspoonful representing about fifteen grains, the adult dose. The preparation is to be taken three times daily, after eating, and preferably in milk.

Lactopeptine, ingluvin, or scale pepsin, may of course be substituted for the neutral pepsin of Boudault, which latter, after repeated trials, I prefer.—*Maryland Med. Journal*, January 16, 1886.

Ammonia in Anthrax and Carbuncle.—Dr. Leonidas Avendano, in a paper read before the Union Fernandina, a Lima medical society, testified to the great value of ammonia in anthrax and "carbunculous diseases." Indeed, he expressed his opinion that it "is a specific, and that it should be the only drug used." In cases of malignant pustule, he advises that after an incision has been made, some drops of the officinal solution of ammonia should be introduced into the wound with the hope of destroying the bacilli there, and of the ammonia finding its way into the circulation before the bacillus does, and thus converting the blood into a fluid in which the parasite cannot multiply. In addition, some ammoniacal salt, such as the acetate, should be given internally, and on the slightest suspicion of general infection resort should at once be had to intravenous injections of ammonia, in doses of ten drops of the officinal solution diluted with an equal quantity of distilled water. In cases of malignant œdema and carbunculous fever, too, "the microbe should be attacked directly in the blood, ammonia being injected into the circulation." The author detailed several cases in which immediate improvement and ultimate recovery had taken place in patients apparently moribund by the use of repeated ammoniacal intravenous injections. He concluded by claiming for Peruvian medicine the honor of having suggested and proved the value of intravenous medication in no less than four different diseases: Dr. Leno Alarco having first injected chloral in tetanus, and ammonia in septicæmia or purulent infection; Drs. Armando Vélez and F. P. del Barco having employed capsicum injections into the veins of yellow fever patients; and Dr. Néstor Corpancho and himself having originated the treatment above described in carbuncle. —*Lancet*, Jan. 9, 1886.

Suppository for Hemorrhoids.—Martin recommends the following formula for use in cases of hemorrhoids:

Antipyrin	. . . . . 38 grains.
Cocoa butter	. . . . . 150 grains.

For five suppositories: two or three every twenty-four hours.—*Revue de Thérapeutique*, Jan. 1, 1886.

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PASTEUR'S RESEARCHES IN HYDROPHOBIA.

DEEP interest has everywhere been excited by the announcement of the results which Pasteur has recently obtained in reference to the prevention of hydrophobia by inoculation, and in the absence of full and authentic statements of the methods employed and results obtained, the press has been teeming with crude and unreliable accounts and criticisms, favorable and unfavorable, of the work done in Pasteur's laboratory.

We have the pleasure of laying before our readers, this week, a full and thoroughly accurate report of M. Pasteur's methods and results from the pen of Dr. F. S. Billings, of New York, who took four of the bitten Newark children to Paris to be inoculated for the prevention of rabies, and placed them under the care of Pasteur, and he has thus enjoyed exceptional opportunities for studying his methods and for obtaining full information concerning his researches on this subject.

Fortunately for the accurate estimation of the efficacy of Pasteur's inoculations, two children who were bitten by the same dog were not taken to Paris, and, with several dogs which were bitten at the same time, are also now under close observation, and constitute a valuable control experiment, the final result of which will be watched with eager interest.

The practical conclusions to which Pasteur's researches so far tend, are that dogs should be subjected to inoculation for rabies and thus rendered harmless, and that those which are not rendered rabies-proof should be put beyond the reach of doing harm.

EMMET'S OPERATION FOR VAGINAL PROLAPSE.

A GRACEFUL compliment was paid to one of the most eminent of the alumni of Jefferson College by an invitation to give a clinical lecture in the College Hospital. Nearly two score years have passed since Dr. Emmet entered Jefferson College as a student; since graduation he has attained an eminence such as few in the profession reach, he has done a very large amount of original work in gynecology, and his success brings honor to the institution in which he received his professional training. He was greeted by the large class of Jefferson College, between five and six hundred, by some students from other colleges, and many members of the profession.

Our readers will find in this number of THE NEWS an authorized report of his lecture, which was a clear exposition of some of his original methods of treating certain lesions of the neck of the womb, of the vagina, and of the pelvic floor. We do not propose any extended or complete review of the lecture; still less shall we attempt any criticisms of his operations, but we may say a word or two as to some of his statements, or theories and reasoning, for while in hearty agreement with his practice, we cannot always accept his explanations.

Dr. Emmet states that he does not believe a woman can give birth to her first child without more or less laceration of the cervix. In opposition to this statement we might refer to a case under our own observation, where a woman five years after her first and only labor had a cervix and os precisely like those of a nullipara. Moreover, if one will turn to page 103 of Tarnier's work, he will find that this distinguished obstetrician states that in two or three instances of women who had each borne one child, he found the os uteri presenting the same characters as in the nullipara, and that he has even met with a subject in her third pregnancy who presented to the touch a neck identical with that of a primipara. Evidently there was no laceration of the cervix in any of these cases.

Dr. Emmet regards his operation for the restoration of the pelvic floor as reuniting torn fascia, and that narrowing the vagina, in cystocele or in rectocele, is a misnomer. First, as to the last statement: We cannot see that if A, B, and C represent three parallel spaces, and we bring A and C together, crowding B completely out, there has not been a space eliminated. Now this is just what is done when two parts upon the sides of the anterior wall of the vagina are brought together over the median line, and there made to unite, as in Emmet's operation for cystocele. To say that the vagina after the operation is no smaller than it was before the birth of a child, is no explanation, for the vagina during labor is immensely enlarged, and probably has never returned to its original condition, and so the surgeon takes away redundant tissue that nature has failed to re-

move. Moreover, after giving birth to a child, a woman, no matter if labor and lying-in be perfectly normal, never has a vagina as small as she had before. If a vagina can be enlarged, why cannot it be lessened? If it cannot be expanded, why cannot it be contracted, or narrowed? Referring again to the letters just used, A and C were separated from each other, but they are now united, and we naturally ask where is the interval that separated them? We are answered that only "redundant tissue" was removed, just as a woman takes "a plait in her dress if it was too large for her." Supposing the dress to be a hollow cylinder, its diameter is surely lessened when the pleat is taken, and so, to our thinking, the vagina is certainly narrowed when two distant surfaces upon one of its walls are brought and kept together.

Now as to whether Emmet's operation—he has originated so many that the one referred to must be specified—designed to restore the pelvic floor does this by uniting torn fascia, we think admits of doubt. We have been struck with the force of some of Budin's remarks in reference to this point in his paper upon physiological and pathological contraction of the levator ani in the female, published in 1881. He states that the comparison of a purse closed with a cord is more easily comprehended with retractile and contractile muscular fibres than with the fibrous tissue of fascia. "One understands more readily, also, the great distention the bands which encircle the vagina can undergo at the time of labor without being ruptured, if their resistance is due not to fascial tissue, but to muscular fibres." In one word, according to Budin, it is the muscular fibres of the anal levator which are torn in some cases of labor, and not fascia. Hence the operation of Emmet restores the former to their integrity. Now that the anal levator has a most important influence in physiological narrowing of the vagina is a demonstrated fact, and hence, if its fibres are torn, the vagina is necessarily enlarged; while, if restored, we must believe that the vagina is narrowed by the operation.

One word as to the restoration of posterior displacements of the uterus, so often observed after an operation for a tear in the neck of the womb. The explanation is found chiefly, we believe, either in some inflammation of the utero-sacral ligaments, causing permanent contraction, or, remembering the name *retractores*, given to these ligaments, we believe, by Luschka, and that they contain a notable amount of muscular tissue, and too, as the researches of Bayer (*Morphologie der Gebarmutter*) show that they contribute largely to the formation of the muscular tissue of the neck and of the lower part of the body of the uterus, in the operation uniting torn muscular structure, and thus restoring to these retractors their original power.

THE TREATMENT OF PROFUSE HÆMOPTYSIS.

PROFUSE hæmoptysis is most frequently met with in chronic phthisis and in erosion of the trachea or bronchi by aneurisms. The initial hemorrhages of phthisis are rarely profuse, and in the stage of ulceration and softening we do not often meet with very free bleeding. Fatal hemorrhages in phthisis usually result from the bursting of small aneurisms of the pulmonary arteries in the walls of cavities, or from the erosion of mural or trabecular vessels which have not undergone the obliterative arteritis which usually precedes their destruction. Where a patient has died suddenly after a free hemorrhage, one or other of these conditions is almost invariably found. In most of the cases suffocation, rather than actual loss of blood, is the immediate cause of death.

A paper of DR. SAMUEL WEST, on the treatment of profuse hæmoptysis, recently read at the Medical Society of London, led to an interesting debate, in which the principles which should guide the practitioner in this serious emergency were fully discussed. Rest and quiet were naturally insisted upon, and the beneficial effect of opium to allay restlessness and excitement was referred to by several speakers. By some it was also regarded as hæmostatic. As in the majority of these cases a vessel is divided or open, not much benefit can be expected from drugs. Dr. West held that the belief as to the use of vascular constringents in pulmonary hemorrhage is based upon an incorrect theory of its pathology. Ergot, he thought, of doubtful value, as it constricts vessels smaller than those from which the bleeding comes. T. H. Green, and the President, Dr. Ord, thought that ergot is of benefit in reducing the blood-pressure. Oil of turpentine was the only other drug which seemed to be in favor with the speakers.

In these cases we have to deal with conditions precisely similar to those which exist in other parts of the body when a vessel is eroded or an aneurism is bleeding. The hemorrhage, if not immediately fatal, is checked by the contraction of the vessel and the clotting of the blood, which are greatly aided by the reduction in blood-pressure caused by the bleeding. Here we have a clue to the rational method of treating such cases. Unfortunately, the arteries from which the bleeding takes place are usually too far diseased to contract much, and we know of no drug which has the power of increasing the coagulability of the blood; but we can influence powerfully the blood-pressure, and so aid the clotting. We have known a bold venesection to check obstinate hæmoptysis in a plethoric man, but this measure is rarely to be practised in the cases under consideration. Other means must be resorted to, of which purgation is the most efficient, by dilating the abdominal vessels, and lowering the vascular tension in other parts. The same effect may be produced

in the vessels of the skin by amyl nitrite, the use of which was suggested by several speakers. Cardiac depressants, such as antimony and ipecacuanha, also influence the blood-pressure, and are thought valuable by some physicians. But, after all, the bleeding is probably the most efficient aid in reducing the blood-pressure and favoring coagulation at the orifice, and we may truly say, in some cases, though it sounds paradoxical, that if hemorrhage does not kill by suffocation, it may save.

The not infrequent recovery from sharp hæmoptysis in cases with pulmonary cavities, teaches us that the bleeding is often controllable even when a vessel or an aneurism of considerable size has given way. Rest, quiet, and a restricted diet, with free purgation and opium to allay the restlessness and cough, are measures the usefulness of which we can heartily endorse; but in these profuse hemorrhages we place little reliance on ergot, turpentine, or other hæmostatics.

THE INTERNAL USE OF VASELINE.

ATTENTION has been attracted to the effects of vaseline and allied hydrocarbons, when taken internally, by the recent decision of the Minister of Commerce in France that the introduction of these bodies into articles of food constitutes a fraud, and as such is indictable. The wisdom of this decision is made evident in the report of the French Consulting Committee on Public Hygiene on "The prohibition of the use of vaseline, petroleine, neutraline, and every other kind of similar products in the fabrication of cakes and of alimentary substances in general.

"Vaseline, not being liable to turn rancid, is fraught with serious danger to the consumer, who, unwarned by the smell of the age of the cake, runs the risk of purchasing pastry, the eggs used in which have already become tainted, and he only becomes aware of it when the pastry is brought under the control of the gustatory organs."

Apart from this, however, the question of the harmfulness of vaseline and its congeners is dependent upon two other considerations: first, whether it is intrinsically poisonous; and second, whether it is in any degree digestible.

In the first regard the evidence is negative. The lighter petroleums are notoriously toxic, but the heavy, residual "mineral oils"—in reality, soft paraffins—are entirely non-irritant even when applied to raw surfaces, and there is no proof that they are absorbed under these conditions. DUBOIS, of Paris, in the *Gazette Hebdomadaire*, of Nov. 27, 1885, has shown that in animals the ingestion of large quantities of vaseline is followed by no toxic symptoms whatever.

The question of the digestibility of vaseline is most important in regard to its introduction as a component in cooked articles of food. If it be digestible, as intimated by Dubois, then its presence is not likely to render such articles more irritant than similar foods containing butter or lard. If, on the contrary, it be indigestible, it will, when present in cooked foods as a substitute for the organic fats, form around the particles of such food a thin but absolutely resistant pellicle, with the result of rendering the food itself indigestible, and therefore, to a greater or less degree, irritant in its entire transit through the digestive tract.

The first study of this phase of the subject was made apparently by RANDOLPH, of Philadelphia, whose paper appeared in the *Proceedings of the Academy of Natural Sciences of Philadelphia*, in 1884, and who, during eight days, took daily one-half ounce of commercial vaseline. Digestion was in nowise altered, and no appreciable results ensued. Thereupon, to each of two healthy adults was given, in the course of forty-eight hours, one ounce of vaseline, and their feces for three days from the beginning of the experiment were collected, dried, and extracted with petroleum ether. With a slight allowance for incompleteness in extraction, the vaseline ingested was, in each case, recovered in its totality, showing that it had passed through the intestine unabsorbed and unchanged. The same writer, in a later communication in the *Therapeutic Gazette*, of Nov. 1885, states that he has utilized his previous observation by administering vaseline to a number of persons suffering from diarrhœas of irritation, with very satisfactory results. The drug in question, in view of its blandness and incapacity for absorption, probably acted as a soothing application to the irritated mucous surface of the entire bowel. The earlier observations of Randolph receive confirmation in some recent statements by JUNKER, which appear in the *London Medical Record*, of Dec. 15, 1885, and there is a reasonable hope that the method here indicated may prove of service in the treatment of enteric inflammation.

OPERATION FOR IMPERFORATE HYMEN.

THE best method of operating in vaginal atresia, whether from imperforate hymen, or from other cause, is still unsettled, particularly as to the immediate or the gradual evacuation of accumulated menstrual fluid, and as to washing out the uterus if rapid evacuation be used. As remarked by Barnes, a few years ago in a discussion upon the subject before the London Obstetrical Society, fatal cases do occur now and then, no matter which plan may be pursued. It is probable, however, since antiseptics have taken so important a place in therapeutics, and are so generally used in the operation referred to, that its mortality will be lessened. Nevertheless danger may come from the antiseptic itself, as suggested by the history of a case recently reported to the *Societe de Chirurgie* of

Paris, and which we find published in the *Journal d'Accouchements*, of December 30th.

A girl twenty years of age, had for a year suffered from severe abdominal pains; she had never menstruated, and emmenagogues were given her without effect. Upon abdominal examination a tumor was found reaching nearly an inch above the umbilicus; at the vulva a violet-colored tumor, formed by the thinned and distended hymen, was found. The patient was anaesthetized, and a small antero-posterior incision was made into the imperforate hymen, this incision was afterward increased in size, and a transverse one made; gentle compression through cotton wadding upon the abdomen was made, and the liquid evacuated in three-quarters of an hour. A tube was placed in the vagina, and a two thousandth solution of corrosive chloride used to wash out the vagina; these corrosive sublimate injections were continued until the fifth day, when a slight mercurial stomatitis being manifested, they were substituted by a solution of carbolic acid. The patient promptly recovered.

M. BERGER, the reporter, recognizes the dangers that may occur from rapid evacuation in certain cases of menstrual retention, but these cases can be known in advance by the fact that the distended tubes are discovered by abdominal examination, presenting fluctuating tumors outside of the median line.

The fact that this patient suffered from mercurial poisoning, though this was only slight, proves that the normal vaginal mucous membrane has greater power of absorption than has usually been attributed to it, and suggests the importance of using weaker solutions of the corrosive chloride, especially if intra-uterine as well as vaginal injections are made.

In the discussion of the subject by the Society, M. Lucas Championnière condemned the use of carbolic acid solution injections, fearing absorption, because of the solution coming in contact with such an extensive surface, and preferred iodoform as an antiseptic. Gillette suggested that to prevent reunion of the lips of the incision, the latter should be made by the thermo-cautery. Of course, when this is done, immediate rather than gradual evacuation of the menstrual fluid necessarily occurs.

It is questionable whether anæsthesia is advisable, when, as in Berger's case, a tense, thin hymeneal membrane is to be incised or punctured, for the operation cannot be painful. Further, the history of the case, prior to the operation, suggests the folly of giving emmenagogues in a girl who had so long passed the age, and had the development of puberty, without first ascertaining whether there was not a failure in menstrual excretion, rather than of secretion, and the case, therefore, one in which such medicines could accomplish no good and might do much harm.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, January 4, 1886.

THE PRESIDENT, W. R. BIRDSALL, M.D., IN THE CHAIR.

A CASE OF SOFTENING OF THE CORPORA STRIATA, WITH SPECIMENS.

DR. J. C. SHAW related the case, that of a gentleman thirty-eight years of age, whom he saw for the first time in July, 1883, in consultation with Dr. Fuller. The patient was a large man, healthy in appearance. About a month previously he had an attack of hemiplegia on the right side, with very temporary loss of consciousness. When Dr. Shaw saw him the arm had entirely recovered, but there was still dragging of the leg. The tendon reflex of that side was exaggerated. There had been no premonitory symptoms except that for six months previous the patient had at times been exceedingly irritable. He denied having had headache, or syphilis, and claimed that if it were not for the paralysis of the leg he would be in perfect health. At this time Dr. Shaw was in some doubt regarding the nature of the lesion; the diagnosis seemed to lie between cerebral hemorrhage and a possible meningo-encephalitis. Against cerebral hemorrhage were his age and the dragging of the foot, the toe scraping the floor; and about the only point which favored meningo-encephalitis was mental irritability. The patient would take no medicine except cathartics.

Dr. Shaw saw him again in consultation in June, 1884. He had suddenly become completely hemiplegic upon the left side; was unconscious and had stertorous respiration; he passed his urine and feces in bed. Recovery gradually took place from the unconscious state, paralysis remained on the left side. Trophic troubles began in the joints of the paralyzed arm, accompanied with pain. Patient would cry when spoken to, and could give no history of himself. At this attack Dr. Shaw concluded that there was cerebral arteritis, probably syphilitic, and thrombosis. The patient accused his wife of infidelity, became very noisy at night, and was sent to an institution, where he died in October, 1884.

At the autopsy the viscera appeared to the naked eye to be normal. Nothing special was observed in the meninges. The ventricles were distended with fluid, and contained granulations. The corpora striata were softened, due to arteritis of both middle cerebral arteries and their branches. There was secondary degeneration in the cord on both sides, and the case seemed to illustrate the unequalness of the decussating fibres on the two sides, the degeneration on the right side in this instance being much more marked than on the left.

Dr. Shaw said the points of interest to him were, that both arteries should have been involved in the arteritis, causing softening of the corpora striata on both sides. That the patient saw dogs, etc., at night, which might have been a form of visual hallucination. Lastly, the accusation of his wife of unfaithfulness, a symptom which is frequently met in chronic alcoholics, but rarely in other conditions.

DR. E. C. SEGUIN asked if there was not probably involvement of at least one internal capsule.

DR. SHAW replied that there was, and that the case probably was not one of limited involvement of the corpora striata.

DR. SEGUIN thought a point of interest was the fact that granulations were found in the ventricles, for this is a rare pathological condition except in general paralysis. It is sometimes found in other conditions, as chronic mania.

DR. SHAW said that the granulations in this case were marked. He had seen granulation on the floor of the ventricles in a variety of conditions in the chronic insane and others. Sections of the cerebral cortex did not show the lesions characteristic of general paralysis. Dr. Seguin may have noticed that the patient was unusually satisfied with his condition, almost amounting to a delirium of satisfaction.

DR. GRACE PECKHAM then read a paper entitled

MIRROR WRITING AND OTHER PATHOLOGICAL CHIROGRAPHY OF NERVOUS ORIGIN.

The paper was introduced by a reference to the expression of individuality in handwriting. "As the members of the body are the servants of the brain and carry out its will in motion, as the vocal organs express its thoughts in sounds, so in the act of writing the hand embodies the subtleties of cerebral action; it is therefore in writing that we may find expressed deviations from normal nervous conditions, sometimes too slight to be indicated in any other way."

The physiology of the handwriting was next considered. Poore's views with regard to the muscles employed in the act of writing were quoted. At no time in the act of writing are fewer than two nerves engaged. The cerebral centres which preside over writing and the inter-commissural tracts are not fully made out. Charcot and others think there is a word motor representative centre situated at the base of the left third frontal convolution near Broca's centre of speech; auditory centres, employed when writing to dictation, in the temporal convolution; ocular centres, used when copying, in the parietal convolution.

We have a right-handed writing to be written with a centrifugal motion, in one direction, across the page from left to right, a writing which taxes the weak muscles of the hands, and which takes four or five times as long as is necessary for the representation of a word, as is shown by stenographers, who write as fast as a person can speak. In view of the increase of writer's cramp due to the extraordinary amount of writing to be done by bookkeepers, book-writers, teachers, and savants, it was suggested that a new method of writing should be intelligently discussed and one inaugurated which should be less elaborate, less taxing upon the small and weak muscles of the hand; a handwriting in which the letters can be formed as in phonography, disconnected, not requiring such precise and complicated notions to make them legible, and which can be written from above downward, from right to left or left to right, as one may choose.

Bianchi, in Italy, and Erlenmeyer, in Germany, were almost the only ones who entered into the study of the pathological signification of the handwriting. The subject has been considered in a disconnected way as a symptom of some diseases treated of in various textbooks. However remotely alluded to, there has been a general acknowledgement of the diagnostic value of the handwriting of disease.

The handwriting may become pathological through the alteration of any portion of the mechanism involved in its production. The paper included only a discussion of the changes produced by abnormal conditions of the nervous apparatus. Alterations in the handwriting may be mechanical or psychical, ataxic or tremulous, or a mingling of the two forms. The ataxic form is physiological when seen in childhood, before the power of coördination of muscles for the complex act has been acquired. The tremulous form is physiological in the handwriting of the aged, in which also is seen a tendency to retrograde into childish handwriting. The principal pathological handwritings are:

1. Handwriting resulting from trauma to the nerves. 2. Mirror writing and agraphia, caused by injury to the cerebral centres. 3. Handwriting of general paralysis, caused by alteration of cerebral tissue. 4. Handwriting as influenced by sclerosis, cerebral and spinal. 5. Handwriting as influenced by functional disturbance, including paralysis agitans and writers' cramp.

Samples of handwriting can be shown occasioned by the interference with the conducting nerve-fibres. Erlenmeyer exhibits a very curious specimen in which there was injury to the radial nerve. The tremulousness, or, rather, interruption of the lines, especially of the upper stroke, is very peculiar.

It is to be regretted that handwriting following injury to nerves has not been more studied, as much of interest from a physiological as well as a pathological point of view might be attained.

At present, considerable discussion has been awakened with reference to mirror writing. Ireland called especial attention to it by his paper on the "Brain," in 1883. Hughlings-Jackson and Buchwald first discovered mirror writing. From experimentation and investigation of the subject, the writer reached the following conclusions:

First, that mirror writing may indicate a change in the perception of the nerve-centres of the brain, what Erlenmeyer would call retrographia. The patient suffering from this would read the reversed writing certainly as easily as the normal. This would be a means of diagnosis between a cerebral mirror writing and one from mechanical causes alone. Second, that from careful examination of twenty-five cases on record, no indication has been found that the mirror writing occurred from other cause than a mechanical one—that is, the person writing with the left hand could do so more easily in a centrifugal than in a centripetal direction, the former association of ideas and muscular action making this so. Therefore, persons weakened by disease, or weak-minded children, in using the left hand, would write centrifugally—that is, produce mirror writing. The reason lies, therefore, not in a pathological but in a physiological condition.

The subject of agraphia has been much discussed of late with that of aphasia. It was first spoken of by Marce, in 1856. There are on record very few cases of agraphia uncomplicated with aphasia. In agraphia there may be word-blindness, word-deafness, or a volitional motor disturbance, resulting in inability to write

The investigators of the subject have entered deeply into the discussion of the seat of the writing-centre in the left hemisphere. The unilateral theory is not so fully endorsed as hitherto. The diagnostic value of the handwriting in agraphia resides in the evidence it gives of the extent of damage done to the brain tissue in these cases of hemiplegia, and also an indication of the location of the trouble.

In the early stages, the handwriting of the insane indicates little the invasion of the disease; but when there are bad spelling and omission of words, it should awaken suspicion. The progress of the malady is marked by changes in the handwriting. It is the reverse of that of childhood. In the first stage there is a diminution of the handwriting, a running of the words together, and either not finishing the final letter, or terminating it in an irregular outline, or dropping it entirely. The letters are shaky, irregular, and there is a plentiful besprinkling of capitals. Later the letters are coarse, irregular, in uneven lines, and finally there are scattered pot-hooks and ataxic marks, like those of a child first learning to write.

The handwriting of multiple cerebro-spinal sclerosis is chacterized by tremulousness.

In locomotor ataxia involving the upper extremities, the changes are shown early when writing with the eyes closed, especially in round letters, and *l* and *e*. They are formed by straight lines more or less extended, instead of curves. When the disease is further advanced, the writing is ataxic when the eyes are open, though not so much so as when they are closed. Later there is inability to write a single word.

The functional disturbances of the handwriting include the writing of paralysis agitans and writer's cramp, as also that of chorea and hysteria. In the two latter there is nothing of special diagnostic value. The writing of paralysis agitans shows the tremor in the early stages. Even when the handwriting looks normal to the naked eye, a glass will reveal the peculiar character given it by trembling. In writer's cramp the writing shows many forms of disturbance, and were there no history, it would be difficult to say whether we were dealing with some of the various forms of tremor, paralysis agitans, progressive muscular atrophy, etc. A study of the handwriting will, however, reveal the nature of the disturbance, whether it is of the spastic, treumulous, or paralytic form.

Dr. E. C. Seguin said that in his practice he has frequently derived considerable help in diagnosis from the patient's handwriting. He thought the medico-legal aspect of pathological handwriting might, after further study, assume considerable importance. It would be of value to be able to say in a court of law whether a given specimen of handwriting was that of an aged imbecile, a general paralytic, or an intoxicated person.

Dr. Leszynsky thought we could hardly say from the specimens of handwriting of paralysis agitans presented that they were characteristic of that disease. He had a number of specimens of handwriting of chronic alcoholism, which were almost exactly similar. Dr. Peckham had not mentioned the handwriting of epileptics, nor had he read of anything characteristic about it, but he could recall two epileptics whose handwriting appeared to be rather unique. In some epileptics there is the condition known as the echo sign, being a repetition of words during conversation. He had seen the same thing manifested in the writing in two cases. He has recently had a case of telegrapher's cramp, in which the hand movements were markedly ataxic, being without any control.

Dr. M. Putnam Jacobi has been struck by the great varieties and peculiarities in the handwriting of persons in usual health; some of the peculiarities supposed to be more or less characteristic of the handwriting of diseased states were also observable in the handwriting of certain persons in a state of health. For instance, Dr. Jacobi is unable, without giving special attention, to write in a direct line across the page; the line always sloped downward. The question has suggested itself to her whether, in the case of the insane, the tendency, especially after writing for a while, to slope the lines downward and to use capitals profusely, is not due to mental fatigue; and the use of capitals may be due to a desire to emphasize an idea which a fatigued and feeble brain is incapable of correctly expressing.

Dr. Dana said he did not think it would be practical for everybody to learn short-hand instead of other writing, but he thought some modification of short-hand might be adopted. There would result perhaps greater facility of expression if present methods of writing were simplified, but there would no doubt be an increased amount of writing, which, perhaps, would be a greater misfortune.

Regarding mirror writing, he thought it is physiological. When we educate the centres to write with the right hand, we at the same time educate to some extent the automatic centres for left hand or mirror writing. If a person put a pencil in either hand and attempt to write his own name, he will find that the left hand will write mirror writing, while from the right hand the usual writing will result. If then by hemorrhage the centre for right handwriting be destroyed, it is perfectly natural for the centre controlling left handwriting, if not corrected by the will, to produce mirror writing.

Dr. A. B. Judson presented a specimen of mirror writing by a negro girl, eleven years of age, produced ten years ago. She had slight right hemiplegia, but was able to perform household work with the right hand, and she could also write somewhat with it. The writing with the left hand was a fine specimen of mirror writing.

Dr. Peckham closed the discussion, and said that the echo sign, the repetition of written words, was well shown in the third specimen presented, that of a woman who had right hemiplegia and amnesic agraphia. Regarding the use of capitals and the tendency to underscore by the insane, she thought they were in harmony with their exaggerated ideas.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, January 5, 1886.

The President, T. G. Roddick, M.D., in the Chair.

RAPIDLY GROWING OVARIAN TUMOR.

Dr. Trenholme showed a large semi-solid ovarian tumor which he had removed from a woman some days before. The patient, when she consulted him, was unaware that she had a tumor, but consulted him for severe abdominal pain, which had lasted some three weeks. She had only noticed a swelling for the last six weeks.

Latterly, the tumor had grown very rapidly. It was removed without great difficulty, though the adhesions were numerous and the operation was complicated and prolonged by the bursting of a cyst. The pedicle was broad, and, as is his custom, he ligated it in sections with shoemakers' thread. The patient's temperature rose to 101° the day after operation, but soon fell to normal, and remained there.

DR. SHEPHERD mentioned that a short time ago he had operated in a case of ovarian tumor (in a childless married woman aged twenty-nine), with a history of only eight weeks' growth. The patient was seen by Dr. R. P. Howard a month before the operation, and at that time the tumor was of small size; it grew very rapidly, and in three weeks was quite large. At the time of operation, it was doubtful whether this rapid increase was not due to ascites. However, it proved to be a single ovarian cyst, with a solid base, containing twenty pints of thick fluid, and weighing some five pounds. The patient did well, and was able to return to her home in four weeks.

UNDEVELOPED BONES IN AN IDIOT.

DR. R. L. MACDONNELL showed the bones of the lower extremity of an idiot, which had been sent to the dissecting-room of McGill University from one of the institutions of the city. The individual was said to be twenty years of age, and had never spoken or walked. The bones, although of good length, were remarkably small, the femur not being thicker than an ordinary sized finger. The hip-joints were ankylosed in the flexed position, and there was contraction of the knees. The muscles of the lower extremities were strings of fibrous tissue with a little muscular tissue about them. The head, although somewhat microcephalic, was of good shape. In one femur there was a well-developed third trochanter.

HEMORRHAGE INTO THE PONS VAROLII.

DR. R. L. MACDONELL read the history of a case of hemorrhage into the pons Varolii. An old man, æt. sixty-two, was admitted into the Montreal General Hospital on July 31, 1885. He had been picked up by the police in the streets, and was in a semi-unconscious condition, unable to communicate anything whatever regarding his history. He was a tall, thin man, very anæmic, with wasted and flabby muscles. His expression was dull and listless, and, though he could utter words when spoken to, he was by no means rational. The pupils were equal, but the left was more sluggish than the right. There was slight paresis of the left side of the face, and the right side of the body was weaker than the left. There was increase of the superficial reflexes, but normal patellar reflex. The urine and feces passed in bed; he was always in a semi-comatose condition; pulse 90, and feeble. On the 3d of August, his breathing was stertorous, and the paresis of the left side of the face more marked, and coma more profound. Next day, the coma was complete, pupils contracted and unequal; large, moist râles heard at the bases of both lungs; toward evening, he died comatose.

The brain alone was examined after death, when a fresh clot was found in the pons Varolii, occupying the posterior or lower part, and situated rather more to the left than the right side. Dr. MacDonnell remarked that the central situation of the clot was shown by the equality of the paralysis on either side, and the greater weakness of the right side being accounted for by the position of the clot. It was a case of alternate hemiplegia, the left side of the face being paralyzed, though to a slight degree. This is characteristic of positive hemiplegia, especially when the lower half of the pons is injured, though usually the fifth and sixth nerves are also involved. There was nothing distinctive in the condition of the pupils, which were not, as usually described, contracted, but merely sluggish in their reaction to light. In hemorrhage into the pons, one of two opposite conditions is usually observed: contraction of the pupils when the lesion is sudden and situated in the upper part of the pons, causing irritation of the nuclei of the third nerve; and dilatation from complete invasion and destruction of these nuclei.

DR. HENRY HOWARD asked if, at the post-mortem, the ruptured vessel had been found, as it was most important to know exactly the source of the hemorrhage.

DR. WILKINS related a case of very extensive hemorrhage into the pons, when the patient lived for eight days.

DR. STEWART asked if the whole of the left facial was affected or only the respiratory branches?

DR. MACDONNELL, in reply, stated that the ruptured vessel had not been found, and that the whole of the facial was paretic.

CEREBRAL SYPHILIS.

DR. GEORGE ROSS reported a case of supposed cerebral syphilis which had occurred in his wards in the General Hospital since his paper on that subject was read before the Society. The patient died a few days after admission, and a post-mortem was obtained. He came into hospital complaining of very severe pain in the head and vomiting. In a day or two he was quite maniacal, and then gradually became comatose. He died comatose five days after admission. At the post-mortem, Dr. Wyatt Johnson found at the base of the brain a single small flake of recent lymph, lying on and attached to the inferior surface of the facial nerve in the right side, near its origin. On slitting up the vessels at the base, this exudation was seen to correspond to a small lateral branch of the basilar artery, where it crossed the nerve. The thrombus extended in this vessel as far as its origin from the basilar, at which point a small roughened, reddish patch existed in the intima, and its wall was thickened, but no thrombus present. The right posterior cerebral artery presented a thickened wall and narrow lumen, and was thrombosed in its whole course; other cerebral vessels normal. On dissecting the brain, no local degenerative changes were recognized anywhere. Dr. Ross remarked that it was singular that such apparently simple lesions should produce such grave symptoms. He had expected to find much more marked pathological changes in the brain.

TREATMENT OF ERYSIPELAS IN INFANTS BY ZINC PAINT.

DR. A. D. BLACKADER read a short paper on the local treatment of infantile erysipelas. After giving an account of the treatment by white lead paint, which he had used to some extent, he said that it had occurred to him to use zinc paint instead in infants less than a year old, so as to avoid any risk of lead poisoning. He used

zinc white made into a paint with linseed oil, and found it a very soothing and cleanly application. He brought forward this method of treating erysipelas as being more easy of application, and more rapid in its results than the old treatment by lead lotion, cotton-wool, corn starch, etc. No bandages were applied to get disarranged or soiled. Whenever the parts are exposed, all the mother has to do is to apply the paint. In this way the application is more continuous, and the results are in consequence better. At the same time that he used local treatment he employed also constitutional treatment by iron and stimulants. He believed that erysipelas is a constitutional disease, and needs constitutional as well as local treatment. He reported a number of cases in very young infants, where the pain and irritation were immediately allayed by the application of the paint, and where the temperature soon fell.

POSTERIOR CERVICAL LACERATION OF OS UTERI.

DR. T. JOHNSON ALLOWAY reported a case, illustrated by diagrams, of severe posterior cervical laceration. The patient had suffered for years from violent hysterical attacks, and was never free from pain—in fact, she was a confirmed invalid. The parts were pared and brought together, with a most satisfactory result. The woman is now as well as ever, and able to attend to all her household duties. Dr. Alloway remarked that severe posterior laceration is a very rare affection; the slighter forms are not uncommon, and unite without operative interference.

SALIVARY CALCULUS.

DR. HINGSTON exhibited a large salivary calculus, which he had removed a few days ago from a lady who had been sent to him for supposed cancer of the tongue. There was great inflammatory swelling of the under part of the tongue.

BALTIMORE ACADEMY OF MEDICINE.

Stated Meeting, January 6, 1886.

DR. J. J. CHISOLM presented the following notes on

A PIECE OF IRIS LIVING IN THE VITREOUS CHAMBER.

G. T. S., aged fifty-nine, six months ago fell down a railroad embankment, receiving an injury to the right eye. When seen by his family physician six hours after the accident, he was suffering intensely. The lids had already become very much swollen. Upon carefully separating them, a wound was discovered at the upper edge of the cornea, from which a thick splinter of wood was protruding. The removal of this bit of wood was accompanied by a bloody aqueous discharge, leaving, however, so much blood in the anterior chamber as to conceal the amount of injury done to the eye contents.

The treatment pursued was rest, cold applications, and the internal administration of anodynes. As the swelling subsided and the blood was absorbed, it was found that sight had been so materially impaired as to leave only perception of light. In time, however, the vision slowly improved, till after three months large objects could be again recognized. In the mean time, the left good eye indicated some growing impairment of vision for distant objects, and the spectacles heretofore worn with comfort no longer permitted easy reading.

This growing defect of vision in the good eye was supposed to be a sign of sympathetic complications, and for this reason the patient was sent to me for surgical treatment.

I found the left good eye hyperopic, V. $\frac{15}{40}$; with a $+\frac{1}{20}$, his distant vision became $\frac{15}{15}$, even above normal, and he read brilliant type readily with a $-\frac{1}{8}$ lens. His spectacles were $-\frac{1}{12}$, which accounted for his discomfort. At first sight the injured right eye presented every appearance of a successful cataract extirpation.

The iridectomy was large, well shaped, centrally located, and clean to the very ciliary border. The well-formed artificial pupil was black, with traces of capsular deposit as is seen after successful cataract operations. He could detect large objects and count fingers readily at four feet, the distance at which I was sitting from him.

In putting a $+\frac{1}{8}$ lens before his injured eye I was surprised to find V. $\frac{15}{70}$, and with a $+\frac{1}{2}$ of $\frac{1}{8}$ lens he could make out words in brilliant type.

He complained of something moving about in his eye, which seemed to wave before his sight. By oblique illumination I could see a whitsh body in the vitreous. With ophthalmoscopic illumination the examination showed a healthy fundus and clear vitreous, so as to give a perfect retinal picture.

Hanging from the roof of the vitreous chamber at some little distance behind the thin, partial capsular film, was a flap of membrane apparently one line wide and two lines in length. It was rectangular in shape and of a yellowish-white color. Upon its anterior surface could be clearly traced a vessel of some size, which, starting at the base, ran down through the whole length of the membrane, to the free extremity of the flap.

This piece of living tissue moving to and fro in the vitreous with the movements of the eyeball, and adhering to the upper anterior edge of the choroid, could be nothing else than the missing piece of iris.

The splinter of wood in entering the eye through the upper scleral border of the cornea, had torn the iris in two places from the pupillary border to the ciliary region, in this way punching a piece out of it. This detached bit of iris had been pushed back into the vitreous chamber, carrying with it a portion of its ciliary body. It remained adherent to the ciliary body at one point by a broad base.

The lens must have been injured also at the time of the accident, because through its torn capsule the aqueous humor had been brought in contact with it, resulting in its complete disappearance by absorption.

As there was a broad base to the flap, with ample nourishing bloodvessels, the piece of displaced iris had continued to live. Under ophthalmoscopic examination it showed boldly as a whitish-yellow membrane against the healthy red reflex of the fundus. Curiously, the passage made by the splinter into the vitreous chamber had not been invaded by inflammatory deposits. The hyaline structures had taken on no pathological changes, and, therefore, excellent vision had been retained in this curiously injured eye.

DR. J. EDWIN MICHAEL then related

AN UNUSUAL CASE OF GUNSHOT WOUND.

On Christmas night last, about nine o'clock, he was called to see a large, stout, well-built German man, a

saloon-keeper by occupation, who had received a pistol wound, while engaged in quelling a disturbance in his establishment.

The ball came from a pistol of the "Bull Dog" pattern, 38 calibre, and was shot from a distance of twelve to fourteen feet in front and a little to the right of the patient.

Upon examining the patient it was seen that the point of entrance of the ball was at a spot almost if not directly over the apex of the heart.

Later measurements showed the exact location of the perforation to be three inches to the left of the median line, an inch and a half to the right of left nipple line, and three-quarters of an inch below a line drawn transversely through the nipple. There was, of course, no probing. The patient was in a condition of extreme shock; stimulants were given, and after a short time consciousness returned. Upon examination by physical signs, a wound of the lower lobe of the left lung and hemorrhage into the pleural cavity of that side was diagnosticated. It was also probable that there was a coexisting pneumothorax of small degree. About eleven o'clock, two hours after the accident, the patient began to complain of much general pain. He became quiet after a hypodermatic of morphia and atropia, and continued comparatively easy for a time, when pain again began to be felt, which was arrested by a repetition of the hypodermatic injection.

At the end of twenty hours from the time of the accident, the patient died.

The autopsy showed that the bullet had passed through the fifth rib, near its junction with the cartilage, through the pericardium, through the left ventricle, making an opening at its point of entrance and another at its point of exit, which two openings were connected by a furrow in the ventricular wall, ploughed up by the ball in its passage through the heart. After leaving the heart, it had penetrated and passed through the lower lobe of the left lung, fractured the eleventh rib, and embedded itself in the soft tissues of the back, about two inches to the left of the spinal column.

He thought it remarkable that such a ball should have passed through the heart without causing instant death. He had seen one other case in which the heart had been perforated by a 22 calibre ball. In this case death was practically instantaneous.

In the case under consideration the wound was obliquely through the heart in such a way as to make valve-like openings in the ventricular walls, similar to the openings in the bladder through which the ureters pass. This form of perforation, he thought, prevented what would have been rapid hemorrhage into the pericardium, had the openings been made in a line perpendicular to the plane at the point of entrance of the ball.

During life there was considerable hemorrhage, but he did not think that it came directly from the heart, but was forced from the pleural cavity by the movements of the lung in respiration. The dressing consisted of cloths saturated in bichloride solution.

DR. J. J. CHISOLM said that, of course, we had all heard of the rare case of perforation of the heart and retention of the bullet within its cavity until found there after death. He had seen cases of injury to the heart by bullets, but none of them had lived so long as twenty hours.

DR. A. B. ARNOLD next read a most exhaustive paper on

CIRCUMCISION,

in which he treated the subject from a moral as well as from a historical and surgical standpoint.

He protested against the practice, not only because he considers it detrimental in robbing the glans of its natural protective covering, and thus exposing to irritation the very sensitive Pacinian bodies about the corona, but because the result of this exposure and consequent irritation, he thought, led to habits of masturbation.

In answer to the question, "Had any hereditary shortening of the prepuce been observed in Hebrew children as a class?" he said he had noticed nothing different in the formation of the foreskin in them from that of other children.

DR. J. EDWIN MICHAEL thanked Dr. Arnold for his paper. He had some time since read an article on the subject from a surgical standpoint. In his experience he has frequently been called upon to remove the prepuce because of its inconvenience. As to affecting the sensitiveness and irritability of the glans, he did not see that the operation made any difference whatever, for how very often do we see men with naturally exposed glans from an abnormally short prepuce. They present no greater degree of sensitiveness. He thought with some eminent authorities, that the sensitiveness of the glans is increased by circumcision of a long prepuce and the irritability decreased.

NEWS ITEMS.

HYGIENE IN JAPAN.—A Bureau of Public Health, on the plan of those existing in Germany, has just been instituted in Tokio. The Director is Prof. Ogata, who has studied for several years in Munich, Leipzig, and Berlin, especially in the laboratories of Pettenkofer and Koch.

AMERICAN AND BRITISH LAUDANUM.—The *Pharmacist* remarks that the tincture of opium of the new British Pharmacopœia is directed to contain about 0.75 per cent. of morphine, while the United States preparation contains about 1.4 per cent., if opium of mean standard strength is employed; and that, therefore, the difference in strength between the two laudanums is almost 100 per cent.—*N. Y. Medical Journal*, January 2, 1886.

NEW YORK PHYSICIANS SEEKING PROTECTION.—Drs. E. G. Janeway, A. Jacobi, Austin Flint, and twenty other physicians, have sent to the Board of Health a written protest against the liability to suits for damages which physicians are made to assume when in good faith they report supposed cases of contagious diseases. A recent suit against a physician, who reported that a woman had smallpox when she was suffering from another disease, was the cause of the protest. It was said that physicians might neglect to report dangerous cases of typhus fever or smallpox if something was not done to change the law. The Board was urged to prepare a bill for the Legislature to exempt physicians from the legal consequences of too hasty reports in cases of suspected contagion. No action was taken on the communication.

Alcohol and Disease.—Dr. Dawson Burns, the Honorary Secretary of the London Temperance Hospital, referring to the statement made to the Local Board of Winsford by the District Medical Officer that, in his opinion, three men who lately died from what seemed an attack of cholera, owed their deaths to the refusal to take alcoholic liquor, calls attention to the fact that the alcoholic treatment of cholera has confessedly proved a failure, and that recoveries have been far more numerous where it has been dispensed with. It is an admitted fact that the ordinary use of alcoholic drink, instead of being a preventive of that disease, rather predisposes to it. The superstitious value attached to alcohol in the treatment of disease is fast disappearing from enlightened medical circles; that the use of alcoholics in the great London hospitals is largely diminishing, with good results; and that the experience of the London Temperance Hospital, where alcohol has been given in only three out of three thousand in-patient cases, with an average annual mortality of five per cent. during twelve years, is exposing the fallacy under which the medical officer of Winsford appears still to suffer. —*British Med. Journ.*, Jan. 2, 1886.

Cremation in Paris.—Much further interest, we learn from the *British Medical Journal* for Jan. 2, 1886, continues to be excited in Paris by the recent decision of the Municipality to erect a crematorium at Pére la Chaise, for which plans have been accepted. It is settled that the expense of cremation is not to exceed fifteen francs, and the time required for combustion will be two hours. It is in contemplation to erect a suitable building for the reception of urns or other funereal vessels containing the ashes of dead relatives, and the artistic world is already discussing the æsthetic side of cremation, while M. Koecklin Schwartz points out that persons of all denominations may unite in erecting a vast mausoleum, in which the ashes of thousands could be deposited in beautiful vessels without injury to the living. This is, however, looking rather far into the future.

The Treatment of Epilepsy.—The prize of 8000 francs offered by the Belgian Academy of Medicine for an elucidation by clinical facts of the pathogenesis and treatment of diseases of the nervous centres, and principally of epilepsy, has not been awarded; but a sum of 500 francs is offered by way of encouragement to the author of the essay bearing the motto, "Traditionem pondero, doctrinam respicio, sequor veritatem," on condition that he allow his essay to be printed in an abridged form with the criticisms of the Commission.—*Lancet*, January 2, 1886.

Absence of Hydrophobia in Berlin.—M. Paul Gibier, who has continued his studies of hydrophobia in the laboratory of Koch, writes to the French Academy of Medicine that he has been absolutely unable to obtain a rabid dog in Berlin, and that the physicians in the Imperial Veterinary School in that city state that they have not seen a rabid dog for more than three years.

M. Gibier attributes this condition of affairs to the fact that *in Berlin all dogs are muzzled.*

A Physiologist's Will.—On the first page of the will of the late Prof. Robin is the following request to the heirs:

"If I die in Paris, let my autopsy be made at the earliest possible moment after my death, by one of the prosectors or assistants of the École de Médecine, to be designated by the Dean. My brain and eyes should be removed and studied comparatively. The left eye was destroyed by a blow in 1835, and the optic nerves and convolutions should be studied with this fact in view."

Presidency of the French Academy of Medicine.—M. Sappey, Professor of Anatomy in the Paris Faculty, has just been elected President of the Académie de Médecine.

Dr. Augustin M. Fernandez, late editor of *El Repertorio Médico* of New York, has removed to New Orleans. He has recently been elected Corresponding Member of the Academy of Medicine of Madrid, Spain, and of *El Circulo Médico Argentino* of Buenos Ayres, Argentine Republic.

Juvenile Intemperance in London.—The Bishop of London, in addressing the metropolitan members of the United Kingdom Band of Hope, congratulated himself and his fellow-teetotallers on the number of children growing up in London on temperance principles. This is a good fact, upon which society is, indeed, to be congratulated. There are few subjects on which mediual authorities are more agreed than in thinking that children are far better without any form of alcoholic stimulant, and juvenile education of this sort is the best counteractive of that deeply inherited vice of English children, which is the result of what Dr. Valpy French calls, in his interesting book, "Nineteen Centuries of Drink in England." Recent Christmas days have given painful evidence that all London boys, or girls either, are not of the Band of Hope. It is a pitiable sight to see boys and girls of sixteen or eighteen reeling along the streets. All honor to the Bishop and his coworkers, who, we trust, will be supported by hosts and hostesses in the remaining holidays. The beverage at all children's entertainments should be non-alcoholic.—*Lancet*, Jan. 9, 1886.

A death from chloroform has occurred at Tunstall, England. The anæsthetic had been administered twice to the deceased on previous occasions, and he had come well out of it, but the third time proved fatal.

A New Chair.—Dr. Lenoir has been appointed to the newly created chair of Cutaneous and Syphilitic Diseases, at Lille.

Official List of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Two Weeks Ending January 16, 1886.

Sawtelle, H. W., *Surgeon*.—To proceed to Los Angelos and Wilmington, California, as inspector, January, 1886.

Godfrey, John, *Surgeon*.—To proceed to Chattanooga, Tenn., and Rome, Ga., as inspector, January 8, 1886.

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

ON ANTISEPTIC PULMONARY MEDICATION.[1]

A Clinical Lecture, delivered in Cochin Hospital.

BY PROFESSOR DUJARDIN-BEAUMETZ,
OF PARIS, FRANCE.

GENTLEMEN: One may affirm, without fear of being accused of exaggeration, that antiseptic pulmonary medication, such as we may ideally imagine it to be, is destined to have a high place in the therapeutics of the future. In fact, in all that concerns the contagion of diseases, the air is the most important factor, and whoever shall succeed in depriving the atmosphere of its germs, will render the greatest possible service to medicine and to hygiene.

Thanks to the brilliant discoveries of Pasteur, and to Miquel's patient investigations, we know to-day by scientific means, not only the number of the microorganisms which flit about in the air, but also the divers varieties of these microbes, which belong especially to the genera micrococcus, bacillus, and bacterium, but more particularly to the first of these genera.

Microbiologists have even gone further; they have commenced the study of these different schizophytes from a botanical point of view, as well as from a physiological; and there is one fact which we have learned from these studies, namely, that when the bacteria thus collected from the air have been cultivated in suitable media and inoculated in animals, they have given rise to nothing but negative results, and it has not yet been possible to reproduce in animals contagious diseases by the introduction of these microörganisms. But, as Miquel has justly remarked, these results should be accepted with the greatest reservation, and one may well ask if the procedures put in usage for the collection and cultivation of the schizophytes may not be sufficient to destroy their virulent properties.

As you might have foreseen, the greater part of these microörganisms—that is to say, eighty per cent.—are aërobiotic—*i. e.*, they have need of oxygen to live and develop.

As for their number, I showed you in one of my late lectures that this varies according to the localities where they are collected, and that the purity of the air is in inverse proportion to the microbes it contains. While in high altitudes you find but very few microbes to each cubic metre of air, it is by the thousands that you meet with them in our hospital wards; and when you reflect that a man breathes through his lungs in twenty-four hours ten cubic metres of air, you can form an estimate of the prodigious number of microorganisms which penetrate by this channel, which forms the most easy and rapid mode of entrance into the organism of infectious or medicinal principles. In fact, substances which penetrate by the lungs, are carried almost directly to the left ventricle, and thence are distributed through the entire organism, and this explains the interest which Claude Bernard took in the method of tracheal medicinal injections in cases of urgency.

I am well aware that, by a lucky anatomical conformation, man breathes only exceptionally by the mouth, and that the air penetrates chiefly by the nasal fossæ, which, by their anfractuosities, act the part of the filtering apparatus employed by Pasteur to purify the air, but this filtration is very often incomplete, since it is by the pulmonary passages that the contagious and infectious diseases are chiefly transmitted.

I cannot here, in this purely medical lecture, discuss in its entirety the subject of antiseptic pulmonary medication, which, by its developments, constitutes one of the grandest chapters of modern hygiene, that of the aëration, ventilation, and disinfection of dwelling-houses.

I shall only refer in this connection to the divers experiments in which you took part on the occasion of the recent cholera epidemic, when Dr. Roux and myself, under the direction of M. Pasteur, showed that of all the antiseptic gases, the most active is sulphurous acid, and this chiefly by reason of its power of penetration. We proved that in the proportion of twenty grammes to each cubic metre of space, sulphur in undergoing combustion destroys the microörganisms contained in a liquid, and that in the proportion of forty grammes to each cubic metre it destroys the same microörganisms in a state of desiccation. But in such media man cannot live, and what we want especially to find, is some safe disinfectant, whether liquid or gaseous, which will destroy the schizophytes, while permitting man to sojourn in the medium where this disinfection is practised.

I know that researches in this direction are being earnestly pursued, and that hope has been entertained that we may find in ozone one of these parasiticide agents, but thus far experiments have not given results confirmed with all the scientific rigor which such researches demand. Others, going back to a notion already put in practice in the middle ages, have thought that the introduction of these microörganisms into the economy might be avoided by the application of protective masks or respirators, such as are used in workshops and factories where the air becomes impregnated with noxious dust; the breathing air being filtered through layers of cotton. I will not dwell longer on this point, desiring merely to hint at this side of antiseptic pulmonary medication. But there is another aspect of the question on which I desire to dwell longer, it is that which concerns the destruction of certain microörganisms which are the efficient causes of pulmonary affections, and I wish in particular to say something about the action of antiseptic substances on the microbe of tuberculosis.

[1] Translated, from advance sheets, by E. P. Hurd, M.D., of Newburyport, Mass.

When at the end of 1882 Koch, in his remarkable communication, demonstrated the microbiotic nature of phthisis, he by this discovery revolutionized the history of tuberculosis, and gave a striking experimental confirmation of the theory advocated many years before by my learned colleague and friend Dr. Villemin.

When Villemin in 1865, in his brilliant work on tuberculosis, announced that this disease was virulent, contagious, and inoculable, he raised in the medical world a real tempest, which was not allayed at the time of the appearance of Koch's researches, and many of the most eminent physicians disputed several of the terms of Villemin's definition. To-day all disputation has ceased before experimentation, and everybody is agreed that the bacillus tuberculosis is the real contagious agent of this disease.

But the application of Pasteur's views was destined not to be limited to tuberculosis; these views were soon to modify and revolutionize a disease which has been considered as the type of inflammatory diseases. On the 19th of November, 1883, Friedlander, completing the first researches which he had made in 1882, showed by decisive experiments that there exists a schizophyte proper to pneumonia, and a few days later, namely, November 30th, Talamon, at the Anatomical Society, made known the result of his researches, and showed that if he did not absolutely agree with Friedlander respecting the form of the bacillus observed, he none the less considered it as the causal agent in pneumonia.

These experimenters thus gave justification to the tentatives made in 1878 by Klebs, who, under the name of *monas pulmonale*, had described a microbe peculiar to pneumonia.

This discovery of a microörganism as cause of certain pulmonary affections ought to be utilized by therapeutics, and just as in basing myself on new experimental researches, I endeavored to establish an antiseptic intestinal medication, so also I would venture to suggest the first principles of an antimicrobic pulmonary medication:

Let us see first what data experimentation can furnish us, and here I shall take as my basis the labors recently undertaken in France, and, in particu' , the able researches of Hippolyte Martin, who .s performed experiments of the greatest interest on tubercle and inoculation by tubercle.

Hippolyte Martin first established the fact that inoculation constitutes the best means of recognizing the real nature of tubercle. When, in fact, you inoculate in animals—guinea-pigs or hares—foreign bodies, or septic matters, you determine in these animals granulations more or less generalized in all the viscera, and which macroscopically and microscopically are identical with tubercles. But that which enables us to distinguish pseudo-tubercles from true tubercles, is that the former have no power to produce tuberculosis in other animals, while, on the contrary, true tubercle indefinitely reproduces the same disease in animals in which it is inoculated, so that even before the discovery of Koch's bacillus (as early as 1881), Hippolyte Martin had been able experimentally to demonstrate the proposition: *tubercle alone engenders tubercle.*

From these experiments, this capital fact is put in clear light, that when you would judge of the real value of antiseptic substances in the destruction of the bacillus of tuberculosis, it is not sufficient to practise one inoculation alone, which may cause the production of pseudo-tuberculous granulations, but the inoculations should be in series—*i. e.*, the products of one inoculation being inoculated in another animal, and so on, and all experimenters who have not taken care to avoid this source of error, must expect to see their results called in question.

Repeating the experiments of Arloing, of Cornevin, and of Thomas, who had made trials of the different antiseptic agents to antagonize the anthracoid bacteria, Hippolyte Martin, in his turn, experimented with these antiseptics against the bacillus tuberculosis. This was his manner of procedure: He crushed and pressed portions of viscera studded with tubercles, and the juice which he squeezed out was put in contact with the fresh amniotic liquor of a sheep, and to the whole was added a given quantity of the medicament to be experimented with; in this way trials were made with salicylic acid, bromine, carbolic acid, creasote, quinine, and corrosive sublimate. These mixtures were injected into the peritoneum of guinea-pigs, and on the death of the animals the inoculations were continued in order to ascertain the real value of the granulations which were found at the autopsy.

In the case of salicylic acid, solutions of five per cent. were powerless to destroy tubercle. Bromine in solution, 1 per 10,000, and 1 per 1000, also proved to be inefficacious; at 1:500 the action was more marked, but in this strength the solutions are caustic. In the case of phenic acid, solutions of 1:1000 had no effect, and even those of 3:100 or 6:100 had a doubtful action, although caustic effects were manifest. Creasote, so much vaunted in tuberculous affections, failed to destroy the bacillus of tuberculosis, even in the proportion of 1 per 1000; and it was the same with quinine. In fine, corrosive sublimate, which has justly been considered as one of the most powerful antiseptics, proved itself without action upon the microörganism of tuberculosis even in the proportion of 1 per 1000.

What do all these experiments go to show? This surely, that the tuberculous element offers an extraordinary resistance to all antiseptic agents, and that, in order to destroy it, you must at the same time destroy the living tissues which are its habitat. In these experiments we must, in fact, carefully distinguish the antiseptic from the caustic action. When you destroy by a physical or chemical agent the elements of a tissue, you thereby abolish its virulent properties; this is, for example, what happens by heat. Hippolyte Martin, in fact, obtained destruction of the tubercle bacillus by heat, and true tubercle was transformed into an inert body when the temperature of 85° C. was exceeded, and this result was the more certainly attained by a temperature of 100° C. and above.

In a manuscript note, which Hippolyte Martin has kindly put into my hands, he signalizes the favorable effects of hydrofluoric acid, which in the proportion of 1 per 3000, and, perhaps, of 1 per 4000, appears to be destructive to the parasite of tubercle. But we must

[1] Hippolyte Martin: On the transformation of true or infectious tubercle into an inert foreign body under the influence of high temperatures and various reagents. Arch. de Phys., 1881, p. 93; Revue de Méd., 1882, t. ii. p. 905, and 1883, t. iii. p. 209.

not, at the same time, forget the extreme causticity of this acid, which acts much more as a destroyer of tissue than as a veritable aseptic.

However, all the experimenters have not arrived at the same conclusions as Hippolyte Martin. Thus it is that Vallin, in the interesting communication made this year to the Academy of Medicine, has shown us that burning sulphur, in the proportion of one ounce to the cubic metre, destroys the virulent properties of tubercle juice. Corrosive sublimate, in the proportion of 1 per 1000, has the same action, but in that of 1 per 2000 it is inefficacious, while nitrosyle, in the proportion of 66 centigrammes per cubic metre, also causes sterilization of tubercle juice. Vallin's procedure was a little different from that of Hippolyte Martin; he made use of strips of filter paper soaked in distilled water; between these strips tuberculous products were crushed, then the paper was dried in the open air, and submitted to the action of divers disinfecting agents; they were finally soaked again in distilled water, and the liquid obtained by expression was injected into the peritoneum of guinea-pigs.

A physician of Allevard, Dr. Niepce, has lately affirmed that sulphuretted hydrogen destroys the bacillus of tuberculosis in the sputa of phthisical patients, and that the sputa thus acted upon become powerless to induce tuberculosis in animals.

A graduate of the school of Montpellier, Dr. Pilate, has repeated, with the aid of Drs. Cavalier and Mairet, the experiments of Niepce, and he affirms that of all the agents with which he has experimented, such as mercuric iodide, corrosive sublimate, helenine, thymol, iodine, carbolic acid, boric acid, the most active is sulphuretted hydrogen. Dr. Sormani and Brugnatelli claim to have obtained an antibacillary action with a certain number of liquids, and even in feeble doses. On the other hand, the experiments made in 1883 by Coze and Simon are absolutely confirmative of those of Hippolyte Martin. These experimenters have divided their researches into three groups. In a first series they mixed forty centigrammes of phthisical sputa, in which they had previously noted the presence of bacilli, with different antiseptic substances; then, after forty-eight hours' contact, they injected these mixtures in guinea-pigs in the region of the groin.

In a second series of experiments they injected only tuberculous matter; then they practised immediately afterward, and for several days in succession, antiseptic injections in the region of the first tuberculous inoculation.

Finally, in the third series of experiments, they endeavored to see if they could arrest the development of the disease in animals already the subjects of tuberculous evolution.

They thus, in their three series of experiments, made trials of bichloride of mercury, eucalyptol, sulphuretted hydrogen, creasote, helenine, thymol, etc. The last two series of researches gave nothing but negative results, and as for the first, creasote alone seemed to them to retard the local development of tuberculosis.

What conclusion shall we draw from all these experimental researches? Must we admit that in man the bacillus of tuberculosis resists all our therapeutic measures? Such a conclusion, gentlemen, would be altogether too premature. These experiments show us that in animals such as the guinea-pig and hare, which present a singularly favorable soil for the development of tuberculosis, our medicinal agents show themselves impotent to destroy the bacillus. But this is not the case with animal species, which offer a better resistance to the bacillus—the dog, for instance—and here we see the bacillary inoculations often fail. It is the same with man, and before the discovery of Koch (as well as since) we were in possession of unimpeachable observations showing the cure of bacillary phthisis. So, while recognizing the useful indications furnished by experimental researches, we must, in order to appreciate their just value, turn to clinical observation.

The discovery of the bacillus, and the experiments which we have just mentioned, indicate to us the therapeutic paths which we are henceforth to pursue, and which comprehend two principal lines of investigation—the one, by which we are to endeavor through medicinal means to oppose the multiplication of bacilli, and the other, by which we seek by hygienic means so to modify culture medium, that it shall be unfit for the habitat of the bacilli.

Prof. Germain Sée, in his work on *Bacillary Phthisis*, has insisted at great length on the new departure which ought to be taken by the therapeutics of tuberculosis since Koch's discovery, and what conditions should be fulfilled by the antivirulent agent, which he calls *necrophytic*.

In the first group of agents, we have chiefly medicinal inhalations, and medicaments which are eliminated by the lungs.

Among the medicinal inhalations, it is substances such as iodine, iodoform, eucalyptol, corrosive sublimate, phenic acid, etc.—in a word, the least irritant antiseptic agents—which should be recommended; and our late venerated master, Piorry, seems to have had prevision of its parasiticide power, when, with such persistence, he insisted on the utility of iodine inhalations in tuberculosis. I believe, also, that iodoform, so much vaunted these late years, may be utilized in these inhalations, being not only a very active aseptic agent, but also a powerful sedative.

You know how these inhalations are practised. They consist in aspirating a current of air through medicinal solutions, and breathing the air thus medicated. A wash-bottle with two tubes communicating with the exterior (one tube dips beneath the liquid), answers the purpose. You can, if you prefer, use the inhaler of Le Fort, of Lille, in which the air penetrates to the liquid through holes in the sides. Le Fort puts into his bottle the following mixture: Camphor, 8 parts; tar, 4 parts; tincture of iodine, 4 parts; Hoffman's anodyne, 1 part. You may also employ some of the more complicated inhalers, in which the air is not aspirated by the patient, but projected upon him by a ventilator operating by clock-work, as in Haro's apparatus.[1] Haro uses iodoform principally, in the pulverization of which it is necessary that the temperature of the mixture should be kept raised. You have seen me use in one of our wards an ingenious vaporizer devised by M. de Linières. This vaporizer, which is put in operation by

[1] Haro: On a New Kind of Inhalations Practised at Amelie les Bains; Bull. de Thérap., t. cvi. p. 409.

Le Fort: On a New Inhaler, and its Action in Pulmonary Affections; Bull. de Thérap., t. ci. p. 342.

a rotatory movement, projects in the ward vapor of water charged with iodoform; but it will take us many months to estimate at their just value the effects of these vaporizations of iodoform upon our tuberculous patients. And now, while on this subject of antiseptic inhalations, I ought to speak to you of the experiments being performed at the present time by my pupil, Dr. Chevy, with hydrofluoric acid, experiments which have been made the subject of his inaugural thesis.

Struck by the results indicated by Hippolyte Martin, demonstrating the remarkable antibacillary action of hydrofluoric acid in tuberculosis, it occurred to me to employ this acid in inhalations; Dr. Bergeron had pointed out the extraordinary effects which he had obtained from the vapors of this acid in the treatment of diphtheria, while Chevy and myself were showing that animals might live without inconvenience in an atmosphere containing 1 part of hydrofluoric acid to 1155 parts of air.

Moreover, a careful investigation made in the great establishments where hydrofluoric acid is used for etching on glass, enabled us to determine, not only that an atmosphere thus charged with hydrofluoric vapors is not injurious to the workmen, but that, on the contrary, individuals suffering from chest affections had experienced favorable effects therefrom; on this point the overseers of the works are unanimous.

We have since then been experimenting by placing our patients in a special ward, of a capacity of about twenty-two cubic metres, in which apartment we vaporized one grain of pure hydrofluoric acid (which would give the proportion of about 1 part to 25,000); the liberation of the hydrofluoric acid is obtained by placing the liquid acid in a small leaden cup heated in a sand bath. Our tuberculous patients remain an hour in this atmosphere. I can say nothing as yet of the results which this experimentation may give; before formulating any positive conclusions these trials must be continued for months and even years.

What I can, however, affirm, is that in the immense majority of cases these inhalations of hydrofluoric acid have not been at all inconvenient to our patients. Some of them have experienced a little irritation in the throat, due to the local action of the acid, but the majority have derived a certain benefit in the way of diminution of the cough and expectoration. I am inclined to think that these inhalations in their application to the treatment of tuberculosis constitute a remedy of much promise.

But permit me, since I am now on the subject of hydrofluoric acid, to say, that of all the antiseptics known, this is, perhaps, the most powerful, and in the experiments which Chevy and I undertook, it required but infinitesimal quantities to arrest fermentation. Pardon, gentlemen, this long digression, but the most of you have followed with interest the experiments to which I have alluded, and I thought it worth the while to sum them up on this occasion. I come back again to my subject, and mention among the means to employ in the treatment of phthisis, antiseptic sprays.

In my opinion these latter are very much inferior to the inhalations, for it is only exceptionally that these pulverizations penetrate to the interior of the lungs. Dr. Miquel, however, claims to have obtained good results in tuberculosis from pulverizations of the following mixture: biniodid of mercury, 1 part; laudanum, 20 parts; distilled water, 2000 parts.

In order to obtain a more immediate action, it has been advised to inject the antivirulent solutions directly into the pulmonary parenchyma. This practice has been attempted in Germany by Heller, who has thus made, in three patients affected with phthisis, intraparenchymatous injections of corrosive sublimate in solution.

In France, Prof. Lepine and his pupil, Truc, have repeated these experiments. This is their manner of procedure: they employ alcohol at 90° containing a variable proportion of creasote, 2 to 4 per cent.; they use for these injections the syringe of Pravaz with the No. 1 needle of Dieulafoy's aspirator, and have already performed twenty-five injections on fifteen patients, introducing each time into the parenchyma of the lungs a quantity of the creasote solution varying from a few drops to fifteen or twenty cubic centimetres.

The results thus far have been uncertain, and in patients affected with advanced lesions they have observed hardly any symptoms of amelioration. Therefore, Lepine and Truc speak very reservedly respecting the definite curative value of these parenchymatous injections, and, for my part, I think that such injections are likely to be more dangerous than useful.

Internally, it is still to such medicaments as creasote, the turpentines, the sulphur preparations, that you will resort; these may render service by their elimination by the pulmonary passages. But whatever parasiticide action these agents may be supposed to possess, they must still yield the palm to the modifiers of nutrition, which render the organic soil unfit for the microbes.

Until by a more exact acquaintance with the bacillus and the conditions of its culture and development, we shall be able, as in the case of anthrax and rabies, to prepare an attenuated virus which, by its inoculation in man, shall preserve him from being the prey to these bacilli, we must direct all our efforts to create in individuals predisposed to tuberculosis a soil unfavorable for the culture of the bacillus. To obtain this result we must utilize two factors: air and alimentation.

Although we have not very precise data respecting the action of the air under different degrees of pressure on the microörganism of tuberculosis, and new researches are needed before we can come to any definite conclusion on this point, we have very good evidence that high altitudes are unfavorable to these bacilli, and even destroy them. The law established by Jourdanet, that at certain altitudes phthisis does not exist, finds a certain confirmation in this fact, that the higher you go, the fewer the microbes you find in the air.

As for alimentation, the method first brought into vogue by Debove has proved to be of the highest utility, and it is to-day generally admitted that, in certain cases where the integrity of the digestive tube is complete, one may, by superalimentation, obtain amelioration and even cure in pulmonary consumption. The important communication of Broca and Wins[1] has given us many conclusive observations to this effect,

[1] Chevy: Thèse de Paris, 1885, and Bull. de Thérap., April 15, 1885.

[1] Broca and Wins: Bull. de Thér., 1883, t. cv. p. 289.

and my pupil Dr. Pennel published in 1882 a series of cases where the beneficial action of this forced feeding was most manifest,[1] and I am astonished that the homœopathic physicians who often give such scrupulously nice attention to the details of their hygienic treatment, have rejected, as Jousset has done, the employment of superalimentation, by powders of meat, for a vegetarian regimen.

I cannot here enter into the details of this superalimentation; you known that, by reason of recent improvements in the manufacture of meat powder, we can now give the latter in chocolate and in syrups, a consequence of which is that we do not now employ "gavage" in pulmonary complaints, reserving it exclusively for patients affected with dilatation of the stomach or persistent vomiting of food. Here, too, I have abandoned the stomach tube which I formerly used, and which goes by the name of "*gaveuse*," for the tube of Debove, which, owing to its resistance and small volume, is introduced without the least difficulty.

What I can affirm, is that in tuberculous patients that have profound and obstinate anorexia, or that vomit their food under the influence of the least effort of coughing, gavage will sometimes give you exceptionally good results. Under its influence the appetite returns, the strength improves, and what is a singular fact, and one not well explained, is that while all food introduced by the mouth is vomited, the alimentary mixtures introduced directly into the stomach by the siphon are well supported, I assign then a preponderant *rôle* to superalimentation in the antiseptic treatment of tuberculosis, and this, because it constitutes, in my opinion, our most powerful means of modifying the culture soil.

As you see now, if Koch's discovery has not already revolutionized the therapeutics of pulmonary phthisis, it has nevertheless enabled us to give a scientific explanation of the *modus operandi* of the greater part of the medicinal agents which we use, and for this very reason it constitutes a step in progress, both from a therapeutic and a prophylactic point of view. This great fact of the contagiousness of tuberculosis is to-day admitted without dispute, and we see on all sides hygienists as well as physicians endeavor to establish on a scientific basis the hygiene of the tuberculous. When you reflect, gentlemen, that at this very time (December, 1885) scarcely three years have elapsed since the discovery of the microbe of tuberculosis, and when you consider the large number of scientific researches and the already voluminous literature to which it has given rise, you cannot fail to entertain with me the hope that the day will come when, better enlightened as to the life history and mode of development of the bacillus, we shall be able to destroy it in the living organism, or at least attenuate its effects.

ORIGINAL ARTICLES.

A YEAR'S WORK IN LAPAROTOMY.

BY WILLIAM GOODELL, M.D.,
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DURING the past year I have had forty-four cases of laparotomy, with four deaths, as follows:

	Cases	Deaths	Recoveries.
Ovariotomy	28	2	26
Oöphorectomy	9	1	8
Hysterectomy	2	1	1
Exploratory incision	4		4
Pelvic abscess	1		1
Total	44	4	40

Of these forty-four cases, twenty-five were operated on in my private infirmary, with two deaths; twelve were operated on at the Hospital of the University of Pennsylvania, with one death; and seven were operated on at the home of the patients, with one death. Of these four deaths only one was due to septicæmia, and that, a case of oöphorectomy, occurred in a private room at the Hospital of the University. It was, I think, in no wise due to hospitalism, but to the adverse complications of the case. The ovary and oviduct were filled with pus, and so matted by inflammation to adjacent structures that only a portion of them could be removed, and that in fragments. The pus unavoidably escaped into the abdominal cavity, which was carefully cleansed and a drainage tube put in, yet a fatal inflammation set in. Another death was due to shock after the removal of the womb containing a fibroid tumor with universal adhesions, and weighing seventeen pounds, The two deaths after ovariotomy were not due to septicæmia, and are somewhat mysterious. Case 139 was operated on at her home in Bedford, Pa., and I did not see her again. The cyst was parovarian, weighing forty-three pounds, and both ovaries were removed. There was not an adhesion, and the operation was a very easy one. For twelve days she did perfectly well; the stitches were removed and the bowels opened. Then an obstinate vomiting set in, which ended her life on the seventeenth day. No autopsy was permitted, but six months before the operation she had had an analogous attack of vomiting, which nearly killed her—her physician, an able practitioner, having, in fact, given her up. In Case 156 death resulted from a supposed attack of malaria. Both ovaries had been removed, the larger one weighing about thirty pounds. There were omental adhesions and very firm ones to the abdominal wall, needing a number of ligatures. She recovered promptly from the operation, the wound united, the stitches were removed, and she was allowed to sit up out of bed. In short, she seemed so certainly convalescent, that I reported her as my twenty-fifth consecutive case of ovariotomy with but one death. On the seventeenth day malarial fever, to which she was subject, set in with bilious vomiting, and, in spite of all I could do, she died rather suddenly on the twenty-first day, with symptoms of heart-clot.

In Cases 136, 138, and 140 the cysts had burst a few hours before the operation, and, although the peritoneum seemed thickened and injected, no bad results followed. In Case 148 the cyst had burst fifteen times, and had been tapped twice before the operation. The tumor was a suspicious-looking thin-walled multilocular cyst of the left ovary. Some of the cysts were filled with pus, others with a clear fluid. The right ovary, which was as large as an apple and filled with a colloid material, burst while

[1] Pennel: Alimentation in Phthisis, Bull. de Thér., t. cii. p. 85.

being removed, and its contents escaped into the abdominal cavity, yet the patient recovered promptly without the use of a drainage-tube. Let me here say that, in my opinion, the danger attributed to the escape of the contents of an ovarian cyst into the peritoneal cavity is much overrated. For instance, some German ovariotomists never use a trocar. They simply incise the cyst, letting the contents fly where they will, and, of course, some must get into the abdomen however it may be protected. So often in my hands has this happened from the bursting of cysts during the process of breaking up adhesions, that I have ceased to be disturbed by the accident. It always necessitates a more careful sponging out of the peritoneal cavity, and, in case the escaping fluid is purulent, a drainage-tube should be used.

There is another point on which my experience may be of value to others, and that is, that Monsel's solution of iron can be applied with impunity to large oozing surfaces. But there must not be a redundancy of the fluid, and it should be applied either by the tip of the finger wetted with it, or by a small sponge well squeezed out. Although appearances are against its use, the blackened and charred-looking flesh does not appear materially to add to the risk of the operation, and it is a great comfort to operators to know this.

From the seventeen cases of double ovariotomy it will be seen that I still adhere to removing the second ovary in women who are near the climacteric, or who have passed it, and always in younger women if it exhibits any trace of disease. I am led to this because there is undoubtedly a great tendency for the second ovary to take on cystic degeneration. It will be observed that in Case 142 I had removed the right ovary four years previously, from a lady aged forty-two. There was not the slightest chance of her ever becoming pregnant again, and I think that, considering her age, the left ovary, however healthy, should have been removed. Early in 1885 it began to enlarge very rapidly, giving the lady much mental and physical distress. In fact, I never saw a patient suffer more from an ovarian cyst. Great abdominal pain and constant nausea and vomiting were the prominent symptoms. For these I had to empty the cyst twice by aspiration. The first time, on March 9th, great relief followed for a few days; the second time, on April 1st, nothing whatever was gained, and I was compelled to operate while she was in a desperate condition of weakness from excessive vomiting. For two days there was a lull in the symptoms, then the old stubborn vomiting set in, which now rapidly reduced her. It was finally controlled by very large doses of calomel—fractional doses not having succeeded. The lady eventually got well, but her nervous system has received a shock from which she has not yet recovered, and perhaps never will. Year before last, I had to remove the second ovary from a woman advanced in life, from whom I had removed an ovarian cyst four years before. Both cysts were colloid, and I believe, from the general infection of the abdominal cavity, that the second one was malignant. The woman died on the fourteenth day from progressive exhaustion, and I cannot but think that, had both ovaries been removed at the first operation, she would still be alive. These two cases, therefore, incline me to consider that, other things being equal, it is erring on the safe side to remove both ovaries.

With regard to papillomatous cysts, I have about made up my mind to consider all benign, until the subsequent history determines otherwise. Cases 136, 138, and 140 exhibit remarkable groups of papillary growths. In the former the whole abdominal peritoneum was studded with them; yet the three patients did well, and have since kept extremely well. In fact, I cannot now recall a case of papillary degeneration which turned out to be malignant. Papillary growths, however, tend to weaken or destroy the wall of the cyst at some point, and these are the cysts which so often burst either before or during their removal. In each one of the cases here referred to, the cyst had burst some days before the operation.

With regard to malignancy, I am sure that Case No. 149 was an example. Both ovaries were similarly affected with a racemose variety of cystic degeneration—that is to say, the cysts were all small, but distinct and separately attached to one common stalk, like a bunch of grapes. The microscopic examination did not reveal either the cells of sarcoma or of carcinoma; yet, from the macroscopic characteristics of the twin growths, I was very confident of their malignancy. The subsequent history confirmed this opinion, for while she recovered promptly from the operation, and for a few weeks was much better, her health unaccountably began to fail, and she died four months later from otherwise inexplicable exhaustion. Malignancy occasionally lurks insidiously in the most benign-looking cysts. A little more than a year ago I removed an adherent cyst which did not arouse the slightest suspicion of malignancy. Lately the lady has presented herself with an epithelial cancer in the upper angle of the incision, which was a long one. In my first case of ovariotomy the same thing happened, the woman dying a year later from malignant disease of the cicatrix.

It will be seen that the proportion of difficult cases was a large one. In some the difficulties to be encountered were apparent beforehand; yet in not a single instance have I declined to operate on account either of the low condition of the patient or of the dangerous character of the adhesions. Out of the twenty-eight cases of ovariotomy there were twenty-one with adhesions. In four of the latter the adhesions were universal, in eight more they were intestinal, and in three they were uterine. Case 135 was perhaps the most difficult operation I ever encountered, and I cannot to this day say whether the tumor was ovarian or not. The cyst was so universally adherent to intestine, womb, bladder, liver, and stomach that it did not have a square inch of unattached surface. It was slowly enucleated, and removed without a pedicle; but very many ligatures were needed. During this process the bladder was torn. The rent was secured in the lower angle of the abdominal wound, and a drainage tube put in; but an urinary fistula is now present, which will have to be operated on at some future time. This case I did

TABLE OF TWENTY-EIGHT CASES OF OVARIOTOMY.

Total Number.	Name and Residence of Previous Medical Attendant.	Age.	Condition.	No. of Children.	Previous Tappings.	Place of Operation.	Date of Operation.	Adhesions.	Ovary Diseased.	Weight of Tumor.	Length of Incision.	Drainage.	Result.	Remarks.
133	Dr. W. Culpeper, Philadelphia.	38	S.	...	...	Univers. Hosp.	Jan. 10	Universal.	R. L.	3 lbs 2 "	Short.	None.	Recovery.	Very difficult operation.
134	Dr. J. D. Strawbridge, Danville, Pa.	31	S.	...	...	Private Hosp.	Jan. 27	Universal.	L. R.	3 "	"	"	"	Dermoid cyst; very difficult operation.
135	Dr. J. G. Seyfert, Pine Grove, Pa.	19	S.	...	...	"	Feb. 1	Universal.	?	40 "	Long.	Tube.	"	Extremely difficult operation; bladder torn.
136	Dr. Bryon Winslow, Curwensville, Pa.	26	S.	...	...	Univers Hosp.	Feb. 7	Intestinal, parietal, and omental.	L. R.	20 "	Short.	None.	"	Papillary cysts; one had burst.
137	Dr. E. L. Welling, Pennington, N. J.	33	S.	...	...	Private Hosp.	Mar. 15	None.	L	22 "	"	"	"	
138	Dr. C. W. Richardson, Philadelphia.	33	M.	2	...	Univers. Hosp.	Mar. 29	None.	R.	20 "	"	"	"	Papillary cyst; had burst.
139	Dr. S. H. Gump, Bedford, Pa.	40	S.	...	...	Home.	Apr. 4	None.	R. L.	43 "	"	"	Death.	Parovarian cyst; easy operation.
140	Dr. R. B. Fishburne, Steel's Tavern, Va.	31	S.	...	...	Private Hosp.	Apr. 12	Uterine pelvic.	L. R.	10 "	Long.	"	Recovery.	Papillary cysts; one had burst.
141	Dr. A. N. Wakefield, Johnstown, Pa.	50	M.	8	...	"	Apr. 12	Universal.	L. R.	5 "	Short.	"	"	Papillary cysts.
142	Dr. W. Goodell, Philadelphia.	46	M.	2	2	Home.	Apr. 16	Intestinal and parietal.	L.	30 "	"	"	"	Right ovary removed four years before.
143	Dr. W. G. Porter, Philadelphia.	34	S.	...	...	"	Apr. 26	Parietal and omental.	L. R.	20 "	Long.	"	"	
144	Dr. H. A. Weed, Jordan, N. Y.	39	M.	2	...	"	May 9	Pelvic and br'd ligam'nt.	L. R.	2 "	Short	"	"	
145	Dr. W. L. Williams, Ridgway, Pa.	20	S.	...	...	Private Hosp.	May 11	Pelvic.	R. L.	1 " 1 "	"	"	"	Parovarian cyst on right side.
146	Dr. D. Hetrick, Alum Bank, Pa.	24	S.	...	...	"	May 14	Br'd lig. and parietal.	L. R.	15 "	Long.	"	"	Semisolid cysts of both ovaries.
147	Dr. C. W. Bachman, Reading, Pa.	35	M.	4	1	Univers. Hosp.	May 28	Omental and parietal.	R.	40 "	"	"	"	
148	Dr. J. A. Miller, Hopewell, N. J.	29	M.	2	2	"	May 31	Intestinal, omental.	L. R.	35 "	Short.	"	"	
149	Dr. B. N. Detwiler, Williamsport, Pa.	58	M.	4	...	Home.	June 13	Intestinal and uterine.	L. R.	10 " 15 "	"	"	"	Racemose cysts; supposed to be malignant.
150	Dr. W. Goodell, Philadelphia.	39	S.	...	...	Private Hosp.	June 14	Br'd ligam't and uterine.	R. L.	20 "	"	"	"	
151	Dr. J. Y. Shearer, Sinking Spring, Pa.	53	M.	1	...	"	Sept. 10	Intestinal, omental and parietal.	L.	40 "	"	"	"	
152	Dr. Willard Springer, Wilmington, Del.	25	M.	...	...	"	Sept. 17	None.	L.	50 "	"	"	"	Parovarian cyst.
153	Dr. A. Shank, Clear Spring, Md.	45	M.	5	9	"	Oct. 11	Parietal, intestinal, and omental.	R.	75 "	Long.	Tube.	"	Over 30 ligatures needed.
254	Dr. N. F. Livingood, Womelsdorf, Pa.	33	M.	1	3	"	Oct. 11	" " "	L.	55 "	Short.	None.	"	Many ligatures needed.
155	Dr. H. McKenean, Washington, Pa.	38	M.	6	...	"	Oct. 25	None.	L. R.	20 "	"	"	"	Parovarian cyst on left side.
156	Dr. H. U. Umstad, Yerkes, Pa.	54	M.	3	...	"	Oct. 25	Parietal an omental.	L. R.	30 "	Long.	"	Death.	Fibroid of womb; died on 21st day from malarial fever.
157	Dr. Thompson, Milwaukee, Wis.	52	M.	2	...	"	Nov.	None.	R. L.	15 "	Short.		Recovery.	
158	Dr. H. Clay Meredith, Pughtown, Pa.	46	M.	2	...		Nov. 22	Parietal.	L	10 "	Long.	"	"	
159	Dr. J. F. Alexander, Centre Hall, Pa.	47	M.	4	...	Home.	Dec. 5	Parietal, omental, intestinal.	L. R	13 " 2 "	"	"	"	Solid tumors of each ovary, supposed to be malignant; large fibroid of the womb.
100	Dr. Rowland, Media, Pa.	50	W.	4	..	Private Hosp	Dec 11	None.	R.	30 "	Short.		"	Stalk so short that [illegible] to be tran[illegible] [illegible]

not expect to get well; indeed, I thought that the shock would destroy life in a few hours. A very large number of ligatures were needed in Cases 133, 134, 135, 146, 151, 153, and 156. No. 156 was the only one of this group that died, not from septicæmia, but from malaria, as I believe. Over thirty ligatures were used in Case 153. The adhesions were parietal, intestinal, and omental; she had been tapped nine times, the tumor weighed seventy-five pounds, and a drainage tube was put in; yet she recovered without a bad symptom. The only way that I can explain why the proportion of cases with adhesions is so much larger than in those reported by European operators, is, that physicians in this country are not yet educated up to the idea of an early performance of the radical operation, and that the women themselves not only put off the evil day, but they often insist upon being tapped—an operation which is very likely to be followed by adhesions.

In the successful case of hysterectomy, a tumor, weighing eight pounds, was removed, together with a portion of the enlarged womb. As the uterine cavity was not invaded, the pedicle, which was as large as one's wrist, was transfixed, tied, and dropped. No bad symptoms followed. This operation was performed at the hospital of the University of Pennsylvania.

The four exploratory incisions were made with the view of removing the ovaries, on account of fibroid tumors of the womb. But in each case the tumor was so fixed by adhesions that the ovaries could not be reached, and the patients had previously stipulated that in that case the uterine growth was not to be removed. Two were performed at my private hospital, and two at the University.

In the case of laparotomy for pelvic abscess, a patient of Dr. W. Sinkler's, pus had been escaping for three years into the bladder and rectum, and the lady was bedridden. As the abscess was always kept empty by these two outlets, fluctuation could not be detected in the plainly thickened, broad ligament. I therefore decided to open the abdominal cavity and the abscess, then stitch its walls to the wound in the belly, and put in a drainage tube. When, however, the abdominal cavity was exposed, the pyogenic body was found to be not larger than a small apple, and its walls therefore could not be raised up and stitched to the edges of the incision. Guided by the hand in the peritoneal cavity, I was able to penetrate, *per vaginam*, the centre of the abscess with the closed blades of a sharply pointed pair of scissors. This opening was now enlarged by my slender uterine dilator, and a flexible catheter put in. While the patient has not been wholly cured by the operation, she has been vastly benefited.

The consideration of my nine cases of oöphorectomy will be reserved for another paper. I will merely say here that four of them were performed for ovaralgia, three for bleeding fibroids, one for epilepsy, and one for a menorrhagia, which had resisted every known therapeutic measure.

In conclusion, let me say, with regard to the technique of the operation for laparotomy, that I use the ordinary knot and the Staffordshire knot indifferently; that I now, in the long incisions, cut directly through the umbilicus, instead of going around it; that I include the recti muscles, and all the tissues in the abdominal sutures; and that, while not a very firm believer in the spray part of antiseptic surgery, I used the atomizer in every case but No. 159, and that this patient did as well without it as most do with it.

THE DISINFECTANT VALUE OF STANNOUS CHLORIDE ($SnCl_2$).

EXPERIMENTS CONDUCTED IN THE BIOLOGICAL LABORATORY OF THE JOHNS HOPKINS UNIVERSITY.

BY A. C. ABBOTT, M.D.,
OF BALTIMORE, MD.

IN view of the objections to the use of mercuric chloride as a disinfectant and an antiseptic, it has been our aim in some recent studies to find a relatively harmless substitute for it.

Not only is mercuric chloride a dangerous poison when taken internally, but it has also been shown to exert a very detrimental action upon lead pipes when brought in contact with them, as is necessary in the disinfection of water-closets. Moreover, several reports have lately come to our notice of its toxic effects having been produced even when used in the very dilute solutions employed in antiseptic surgery and in obstetric practice.

It was hardly with the hope of having found a substitute devoid of these objections, and at the same time possessing an equal potency as a germicide, that Dr. J. R. Duggan, of the Johns Hopkins University, recently suggested to me the advisability of making some experiments upon stannous chloride ($SnCl_2$), with a view of determining its influence upon living organisms. The analogy of its chemical composition to that of mercuric chloride, its lack of poisonous properties, its non-corroding action on lead pipes, and the cheapness of its preparation, at once recommended it as being possibly the substance for which we were seeking. Accordingly, a series of experiments were begun.

A solution of the salt of known strength having been made, its germicide value was determined after the same method as has been adopted in all of our work on commercial and other disinfectants. The salt under consideration came far short in its germicide value of mercuric chloride—far short, in fact, of what we had expected—yet the evidence of its possessing a higher potency in this capacity than many other substances commonly employed for the same purpose, together with the points above enumerated in its favor, we think sufficient to justify us in recommending it for general use

Our experiments show that stannous chloride, when in contact with spores in decomposing organic matter, kills them at 1 per cent. after an exposure of two hours, and that it failed to disinfect the mass when present in 0.8 per cent. after the same length of time. Comparing these figures with those indicating the potency of zinc chloride, copper sulphate, zinc sulphate, and ferric sulphate, which are the salts most generally used for the purpose of disinfection, we find the first of these, zinc chloride, to be active in 5 per cent., and inactive when present in 2.5

per cent.; while the last three—copper sulphate, zinc sulphate, and ferric sulphate—we find to be inefficient respectively in 20 per cent., 40 per cent., and in saturation. These facts, taken in conjunction with the moderate cost of stannous chloride, and its entire inactivity on lead pipes, are sufficient to indicate a large field of utility for this compound. Moreover, when taken internally, it has no more deleterious effects than the salts of copper, zinc, or iron.

We might here state that in making a solution of stannous chloride intended for permanent preservation, it is advisable to add an equal weight of ammonium chloride; this prevents the formation of the insoluble oxychloride of tin, which would otherwise be deposited upon standing.

At the suggestion of Dr. Duggan, similar experiments were instituted with the stannate of potassium; but our report in this regard is less favorable than upon the stannous chloride. This substance having shown itself to be inefficient as a germicide, in a 3 per cent. solution, we concluded to pursue the investigation no further, as the compound could, under these circumstances, be of no practical value in this capacity, and especially as the expense attending its manufacture is much greater than that of other substances which occupy a higher place in the scale of disinfectants.

MEMBRANOUS CROUP; TRACHEOTOMY; RECOVERY.

BY JOHN D. NEET, M.D.,
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THE following case of tracheotomy for croup is chiefly reported for its statistical bearing.

On the evening of Nov. 13, 1885, I was summoned to see Annie H., æt seven years, suffering with membranous croup. Five days previously (Sunday) she manifested the usual symptoms of acute catarrhal laryngitis. On Tuesday she was quite hoarse, cough dry and stridulous, and respiration labored. During the time she was under the charge of two other physicians, who had faithfully administered the usual treatment for croup. In response to the urgent request of the little patient, I assumed management of the case on Friday evening.

On examination I found the fauces and pharynx very much congested, but free from membranous exudation, nor was there any enlargement of the cervical glands. Pulse 110; temp. 99½°; expectoration scanty; respiration stridulous and difficult. The treatment by mercurials having been ineffectually tried, I prescribed the ammonia and potash preparations, with counter-irritation and flaxseed poultices over the larynx, and impregnated the air of the room with steam from strong lime-water. The dyspnœa and cough grew worse toward morning, and an emetic was administered. This, with the violent coughing, caused the expulsion of a piece of tough membrane five-eighths of an inch long, and one-fourth of an inch wide.

Nov. 14.—9 A. M. Pulse 104; temp. 91°; respiration less difficult; treatment continued. 6 P. M. Pulse 110; temp. 99½°. Emetic administered, but symptoms unimproved.

15th.—Condition during the night and day unchanged.

16th.—9 A. M. Patient worse. Pulse 120; temp. 99½°; respiration more labored and difficult. 8 P. M. Patient unable to lie down. Pulse 130; temp. 100°; beginning cyanosis about the lips: cough constant, dry and stridulous; marked dulness at the base of right lung, and crackling râles throughout both lungs. All treatment having failed, it was now evident that tracheotomy was the only available source of hope. Drs. Skillman and Scott, of Lexington, were called in consultation, and besides concurring in the opinion that tracheotomy was imperative, rendered valuable assistance at the operation.

17th.—2 A. M. Pulse 200; physical signs of pulmonary œdema present, countenance of a bluish-ashy hue, and exhaustion pronounced. Chloroform was administered, and I proceeded at once to open the trachea. Hemorrhage was free, but entirely venous. There was no delay on account of the bleeding, but the trachea was opened at once, whereupon the patient coughed and expelled through the opening a piece of false membrane one inch and a half long, and half an inch wide. The moment the tube was inserted the hemorrhage ceased. In fifteen minutes thereafter the pulse had fallen to 150, respiration 40, and easy. In thirty minutes the pulse was 138, and the patient removed to bed.

8.30 A. M. Patient had a paroxysm of coughing, and the tube became obstructed with false membrane. The inner tube being removed, with Trousseau's tracheal forceps I extricated a large mass, in pieces, of false membrane, and the patient sank into a restful sleep.

11 A. M. Patient has taken four ounces of milk. Pulse 128; temp. 99⅘°; respiration 30.

6 P. M. During the day with each paroxysm of coughing, small pieces of membrane were expelled through the tube. The inner tube required to be removed every hour in consequence of occlusion by tenacious mucus and small particles of false membrane which could not be removed with a feather. Pulse 120; temp. 99½°; respiration 28; crackling râles less abundant, and dulness at base of right lung disappearing.

7 P. M. Another paroxysm of coughing, and tube choked with false membrane. With Trousseau's forceps a still larger mass of membrane was removed.

18th.—7 A. M. In consequence of the cough and occlusion of the inner tube, requiring its removal every half hour, the patient slept very little last night. Pulse 116; temp. normal; respiration 28; dulness at base of right lung disappeared, yet there are a few crackling râles present. Patient drank two glasses of milk during the night.

7 P. M. Patient fretful all day. Pulse 125; temp. 100°; respiration 35; cough almost constant, secretion through tube less, dulness with crepitation in lower lobe of right lung.

8 P. M. Another violent paroxysm of coughing, in which death seemed imminent from suffocation. A piece of false membrane two inches long, and half an inch wide, removed through tube. Administered

twenty grains of calomel. Patient passed into a quiet sleep.

19th.—9 A. M. Patient had a more comfortable night; cough not so troublesome. Calomel acted freely. Pulse 115; temp. 98⅘°; respiration 26. The dulness with crepitation in the right lung has disappeared.

6 P. M. Pulse 112; temp. normal, respiration 26. Secretion through tube now thick and yellow, showing the detritus of the disintegrating membrane. Ten grains of calomel administered.

20th.—9 A. M. Pulse 108; temp. normal; respiration 25, and lungs clear throughout. Patient takes nourishment freely.

6 P. M. Pulse 103; respiration 26. Ten grains of calomel

21st.—9 A. M. Patient slept well last night. Pulse 100; respiration 24.

6 P. M. Condition the same.

22d.—Condition about the same throughout the day.

23d.—9 A. M. Pulse 96; temp. normal; respiration 24. Inner tube closed by a small cork, and as the patient breathes well *per vias naturales* it is allowed to remain.

24th.—Patient having suffered no distress with tube corked, the tube is now removed, and over the wound is placed a bandage of cheese-cloth attached to oil-silk.

5.30 P. M. Patient breathes partially through larynx, and tracheal opening half closed.

25th.—Wound closed.

26th.—Patient up and dressed, aphonia subsiding, and wound healing nicely.

Dec. 2.—Wound entirely healed, and patient discharged.

The after-treatment of the case can be summarized in a few words. The temperature of the room was constantly maintained at 80°, and the traditional steam kettle dispensed with as useless. Repeated doses of calomel were administered for its alleged effect upon membranous exudations. While physical examination of the lungs pointed to the probable early accession of pneumonia, none of the usual remedies were resorted to for the relief of this condition; for it was regarded as the effect of mechanical obstruction in the larynx preventing free access of air to the lungs, and upon removal of the cause we expected the effect to cease without recourse to therapeutic measures.

We find, from the clinical history, that the dulness of the lung had disappeared twenty-nine hours after the operation, but in *twelve* hours later, there was a reappearance of the physical signs of pneumonia. During the twelve hours preceding the accession of the pulmonary symptoms the patient had been coughing almost constantly in the effort to expel a foreign substance (false membrane). This being removed, in twelve hours more the physical signs of pneumonia had again disappeared. From the facts it seems proper to conclude that the detached membrane within the trachea, acting mechanically and exciting irritation, stood in a causative relation to the development of the pulmonary symptoms; for after it was extricated the lung soon resumed its normal condition.

It is conceded on all sides that the success of tracheotomy for croup depends preëminently upon the close and unremitting attention of the surgeon, with scrupulous care in the various measures comprised under *good nursing*, and to which his personal attention should be given. For, amid the perplexing emergencies which are liable to arise at any moment from detached membrane or occlusion of the tube, it is a hazardous experiment to entrust the necessity for prompt and judicious action to an inexperienced hand. The span of a few seconds may prove the measure of our opportunity, so that, with a concientious regard for the best interests of the young life entrusted to his professional skill and keeping, and imbued with an earnest desire to lend his efforts toward elevating the operation from that opprobrium into which its high mortality-rate has placed it, it devolves upon the surgeon as his paramount duty to give that personal attention—even to the total neglect of other business—which the direful emergencies of these cases necessitate. The human interest demands this—the scientific interest calls loudly for it; and he, who cannot thus briefly sacrifice his outside interests, should not abuse the privilege and power which his high vocation reposes in him, by imperfectly doing that which ought to be done well.

MEDICAL PROGRESS.

ALBUMINURIA OF PREGNANCY AND ECLAMPSIA.—DOLÉRIS and POUEY have studied in collaboration the relation of microörganisms to the albuminuria of pregnancy, and have arrived at the following conclusions:

1. Microörganisms are to be found in the bladder in these cases independently of albuminuria, and apparently unconnected with any kidney trouble.

2. Albuminuria is present in about five per cent. of pregnant women, and in such urine microörganisms, especially streptococci, are always present.

3. The blood of such women usually, if not always, contains bacteria, the presence of which is demonstrable by culture.

4. In the cases of albuminuria of pregnancy with eclampsia, microörganisms were present in both blood and urine, and apparently had a direct quantitative relation to the severity of the convulsions.—*Centralb. f. klin. Med.*, Dec. 26, 1885.

DILATATION OF THE UTERUS.—VULLIET has made a communication to the Medical Society of Geneva regarding a new method of permanently dilating the uterus. This operation, which he has performed successfully for over a year, permits the inspection and study of the uterine cavity even during menstruation, and is so complete that casts and photographs of the interior of the uterus have been taken.

The female is placed in an exaggerated genupectoral position and the dilatation is begun by the successive introduction of urethral sounds. This is succeeded by the introduction of small tampons of iodoform wadding, the number of which is gradually increased, and which are permitted to remain in place for forty-eight hours. Occasionally a piece of laminaria is introduced, never

longer than twenty-four hours, and it is immediately replaced by iodoform cotton. At the end of a period varying from ten to twenty-five days complete dilatation is obtained.

In the thirteen cases in which Vulliet has performed this operation no ill result, apart from occasional temporary uterine colic, has ensued. The clinical indications for this procedure are evident, inasmuch as by its means the direct treatment of uterine neoplasms is rendered practicable.—*Revue de Thérap.*, Jan. 1, 1886.

The Alleged Fragility of the Bones of General Paralytics.—Dr. T. Christian, Physician to the National Asylum of Charenton, states that as a result of the study of the available statistics, and of personal observation of about 250 general paralytics, that general paralysis does not in itself entail any increased fragility of the bones, and that when osteomalacia is present in these cases it is a purely accidental phenomenon the result of other causes.—*Journal of Mental Science*, Jan. 1886.

Passage of Pathogenic Microbes from Mother to Fœtus.—The continued observations of Koubassoff, reported in *Comptes Rendus*, ci., have given the following results:

1. The anthrax bacilli always pass to the fœtus.
2. The longer the period between the inoculation and death of the mother, the more numerous the bacilli found in the fœtus.
3. More bacilli of the virulent than of the attenuated anthrax virus thus pass over.
4. Maternal inoculation with very strong anthrax vaccine nearly always produces the death of the fœtus.
5. The inoculation with virulent lymph of a pregnant animal which had previously been vaccinated with the attenuated virus is nearly always fatal to the fœtus, and offspring which have survived such maternal inoculation themselves succumb to similar inoculation after birth. In other words, the fœtus is never sufficiently vaccinated through the mother.—*Centralb. f. d. med. Wiss.*, Jan. 9, 1886.

Elimination of Arsenic by the Mammary Gland.—Brouardel records a recent case of poisoning in which a wetnurse was the victim and in which the infant at the breast also succumbed. From the body of the child five milligrammes of arsenious acid were obtained. An experimental verification of these results was obtained by Pouchet in the examination of the milk of some nurses in the Hôpital Saint-Louis, who were under arsenical treatment with Fowler's solution. One of them, who received during one week eight milligrammes of arsenic daily, yielded milk which was shown on chemical analysis to contain in each 100 grammes one milligramme of arsenic.—*L'Union Médicale*, Jan. 3, 1886.

Route Pursued by Inoculated Tuberculosis.—At the session of the Academie des Sciences of December 28, 1885, M. E. Colin presented an account of his experiments on the effects of the inoculation of tubercle in various domestic animals.

He finds that before becoming a visceral affection, tuberculosis constantly attacks the lymphatic system. Instead of being generalized, the first lesion is one of that part of the system in which the foreign matter in question is absorbed, and that such lymphatic tuberculization progresses regularly until the tuberculous matter reaches the general circulation.—*Progrès Médical*, Jan. 9, 1886.

Conditions under which the Blood Coagulates in Living Vessels.—As an addendum to his previous communications on sanguine concretions, Hayem writes as follows to *L'Union Médicale* of Jan. 7, 1886:

In order to demonstrate that stagnant blood may become coagulable while still in contact with the living vessels if the plasma become altered, the jugular of a dog is exposed and ligated in two places in such wise that the portion thus included shall be distended with blood. Into the saphenous vein are then injected a few cubic centimetres of canine serum, and immediately thereafter the other jugular is ligated in a manner similar to the first. At the end of from half an hour to an hour, upon opening the two jugulars, it is found that the blood included between the first two ligatures is fluid, while that similarly treated on the other side has formed a complete clot.

Chloroform Water as a Hæmostatic.—Spaak, of Brussels, recommends the use of a two per cent. aqueous solution of chloroform as a hæmostatic, especially in operations in oral surgery. Its action is very rapid and simple. Washing out of the mouth is said to be sufficient to arrest bleeding even of the large vessels. *Medicinisch-Chirurgisches Centralb.*, Jan. 1, 1886.

Relation of Hepatic Stimulants to the Formation of Urea.—In an elaborate article in the *Journal of Anatomy and Physiology* for January, 1886, Dr. D. Noel-Patton thus summarizes the results of his experiments on the relationship of urea formation to bile secretion:

1. *Salicylate of Soda.*—(A) *In man.* In dose of 0.106 grm. per kilo, salicylate of soda causes no change in the amount of water passed, a slight increase in the urea and a very marked diminution in the uric acid excreted. This last change is by far the most manifest; in one experiment the diminution was as great as 64 per cent.

(B) *In dogs.* In doses of from 0.45 grm. to 0.6 grm. per kilo, salicylate of soda caused a marked diminution in the water passed, a rise in the urea, and a very great diminution in the uric acid excreted.

2. *Benzoate of Soda*, in doses of from 0.51 to 0.58 grm. per kilo, causes little or no change in the amount of water. The urea is greatly increased and the uric acid is diminished, though not so markedly as with salicylate of soda.

3. *Colchicum*, in doses of 0.02 to 0.037 grm. per kilo of the acetic extract (B.P.) causes a very marked increase in the urea and uric acid. When the doses are small the water is also increased, but with large doses the water secreted may actually fall, while neither the urea nor the uric acid are so markedly increased as with smaller doses.

4. *Perchloride of Mercury*, in doses of from 0.0015 to 0.0075 grm. per kilo, causes an increase in the excretion of water, urea, and uric acid.

5. *Euonymin*, in doses of from 0.04 to 0.10 grm. per kilo, causes a slight increase in the water excreted, and a very marked increase in the urea and uric acid. In larger doses, 0.16 grm. per kilo, it causes purging, with no diminution in the water passed by the kidneys, but without the marked rise in the urea excreted.

We thus see that in dogs, in a condition of nitrogenous balance, stimulation of the flow of bile by means of these drugs is accompanied by an increased urea production.

That an increased production and not merely an increased excretion of urea occurred, is clearly shown by the fact that, after the administration of the drug was stopped, the amount of urea merely returned to the normal and did not manifest a fall corresponding to the initial rise.

I would, therefore, conclude that the formation of urea in the liver bears a very direct relationship to the secretion of bile by that organ. On the nature of this relationship I have not touched in the present paper, but at an early date I hope to give the results of a series of experiments upon this subject.

To the physician the results of these observations must have considerable interest, especially of those which, dealing with the influence of salicylates and benzoates upon the uric acid excretion, afford a key to their mode of action in gout. No less interesting is the demonstration of the fact that colchicum increases and does not diminish the production of uric acid.

A RECENT STUDY OF NUX VOMICA.—At a late meeting of the Philadelphia County Medical Society, DR. JOHN H. MUSSER presented a paper "On the Influence of Age on the Dosage of Nux Vomica, with some Remarks on its Therapeutics," in which he says:

Going over the notes of some fifty cases, I find that at from 15 to 40 years of age 45 drops or more of the tincture were almost invariably well borne. After 40 years it was the exception to be able to increase the dose over 35 drops without causing disagreeable symptoms.

One of the patients, aged 24, took 200 drops three times daily with most decided benefit. To another, aged 16, 125 drops were exhibited without experiencing any bad effects. On the other hand, a male, aged 60, could take but 20 drops, and not one over 50 could get beyond 35. Patients aged 16, 24, 28, 35, and 40, took 40, 55, 30, 45, and 45 drops respectively before any therapeutic benefit could be seen.

Two effects of large doses of the drug were observed, that, under certain circumstances, would be disadvantageous,—the production of diarrhœa and of frequent seminal emissions. Small doses of laudanum would readily control the former, although it is rare that the case would demand such very large doses. The latter symptom could not well be remedied.

In mental and physical depression due to prolonged excitement this drug is of value. One of my students took from 600 to 800 drops of the tincture daily, and thereby successfully tided himself over a period of great strain. In fact, he studied harder and kept later hours than at any other examination period, and with less detriment to his health. He is myopic and astigmatic, and this was the first time he came out of his studies without suffering from eye-strain. The doctor writes me that he has used the drug since, in practice, under similar circumstances. For instance, he helped along well a young society girl, who was unusually busy with engagements, until the rush was over. These uses of the drug are as dangerous, however, as those of any stimulant, and it should be given only on extraordinary occasions for the purpose indicated. Its use as above serves to show its power as a nerve stimulant.

It has recently been the custom of students of medicine to take caffeine to keep them awake for study. My observation of the students who had taken one of these drugs was favorable to the use of nux vomica. The ones who took it came off with much better health and less nervousness than the caffeine-eaters.

The following are some of the conclusions which may be drawn from the above statements:

1. The effects of nux vomica are in inverse proportion to the age of the patient; the susceptibility increasing with the age.

2. The usual doses of the tincture indicated in the text-books are inadequate for many practical purposes, and do not represent the usual dose of strychnine.

3. It is a powerful and rather transient stimulant.

4. The best therapeutical effects can be secured in many cases only by pushing the drug almost to the physiological dose.

5. The system soon becomes accustomed to its use, and the dose must be increased.

6. The good effects in dyspepsia are largely due to its power to heighten reflex excitability.—*Therapeutic Gazette*, Jan. 15, 1886.

RELATION OF PRECOCIOUS AND TARDY MENSTRUATION TO THE DEVELOPMENT OF THE FŒTUS AT TERM.—NEGRI, after a study of the data of some twelve hundred labors, concludes that the maximum development (in point of size and weight) of the fœtus at term is found in primiparæ who began to menstruate between the ages of thirteen and seventeen years. Less development of the fœtus is found in primiparæ who menstruated after seventeen years, and the minimum, both in size and weight, in the offspring of primiparæ who menstruated before attaining the age of thirteen years.—*Gaz. Méd. de Paris*, Dec. 19.

TESTS FOR LEAD IN SOLUTION.—Cases are not rare where the presence of lead in water has been exceedingly harmful. When suspected the following will be found efficacious: A very delicate test for lead is by the direct addition of a small quantity of hydrosulphuric acid. This is applicable where a solution is to be tested for lead only. The hydrosulphuric acid produces a black precipitate, if lead is present in large quantities; if in small quantities only, a brownish tint to a dark coloration. This test is of special use in detecting lead in waters used in the manufacture of beverages, which it frequently contaminates, because of the abundant use of lead in the form of pipes and solder, and the presence of which in any proportions renders the water deleterious. Another method for detecting lead that has been dissolved by the corrosive action of water is by the addition of a drop or more of an aqueous solution of cochineal, and if lead is present, even in very minute proportions, a fine violet coloration will be produced. Cochineal will give this test in any solution of lead, provided it is strictly neutral in reaction, but fails in an acid solution.—*Pharmaceutical Record*, Jan. 15, 1886.

THE MEDICAL NEWS.

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SATURDAY, JANUARY 30, 1886.

IS AMYLOID DEGENERATION CURABLE?

As is well known, the duration of life in amyloid degeneration of organs is very variable, but, once established, an actual cure is regarded as impossible. When suspected, and recovery occurs, a reasonable doubt may be entertained as to the correctness of the diagnosis.

The possibility of cure has recently been urged by LITTEN, at the Berlin Medical Society, partly on clinical, partly on experimental grounds. Recovery has been seen in cases in which the visceral enlargements and the state of the urine, in association with syphilis or bone disease, left little doubt as to the actual condition which had existed, though in these instances, of course, a positive diagnosis could not be reached. Then, again, there were cases in which the clinical features of the disease were well marked, and the organs after death presented all the characters of the amyloid change, save in the absence of the special reaction to iodine and methyl-violet. Such instances seem to point to differences and changes in the amyloid substance, which may ultimately be detected by other reagents than those at our command at present. He referred to four such instances, which had been under the care of Friedreich. To test the possibility of the absorption of amyloid matter, he introduced small portions of amyloid liver into the peritoneal cavity of guinea-pigs, and found, after some months, that the tissue had so far changed that the reactions were no longer characteristic. It is possible that such gradual changes may also take place in the human body when the symptoms of amyloid degeneration disappear.

In the discussion which followed, VIRCHOW criticised these views very strongly and held that there are no grounds for supposing that, when once present, the amyloid matter can be removed. The degeneration is in reality a substitution of this material for the protoplasm of the affected tissues, and the elements involved cease to have organic structure. We cannot imagine its absorption without actual defects or spaces being left. A small vessel in a state of amyloid degeneration was compared to a tube of ice and the absorption of the amyloid would be like the melting of the tube—nothing would be left of the one or of the other.

Certainly the evidence is not yet forthcoming to show that this serious form of degeneration is ever curable, but we do meet with cases in which, under treatment, the condition becomes much ameliorated and the organs affected reduced in size. In syphilitic patients particularly, the disease may exist for years and present many variations in its progress. While it is possible that in some of these cases the process may be arrested, the reduction in the volume of the liver and spleen, which is regarded as the chief evidence in favor of the absorption of the amyloid matter, may depend on a change in elements other than those affected with the degeneration.

CENTRAL RUPTURE OF THE PERINEUM.

CHARPENTIER has, in the November and December numbers of the *Archives de Tocologie*, an interesting contribution upon central rupture of the perineum, and to some of the points presented by him we wish to call attention.

We have been especially impressed with the decided endorsement which this distinguished obstetric teacher gives to the views of Fabbri, published in 1857, and since upheld by Sabatier, by Boissard, and by others, that the bony pelvis, to which soft parts are added, continuing its canal, and forming its floor so as to constitute the obstetric pelvis, is actually a cylinder. The coccyx is at the fundus of this cylinder, and the vulva is an opening upon its anterior wall; according to Sabatier, "the fœtus in traversing this cylinder describes, by the movement of its centre, a line of progression, subdivided into a line of engagement, of descent, and of disengagement. The line of descent, or practical axis, or directing line, is a straight line as is the axis of the anatomical pelvis." Nevertheless, he holds that this line is not confounded with the anatomical axis of the pelvis, for it is not contained in any position whatever in the antero posterior median plane, but varies according to the position, and according to the variety of the position. "There is not, then, a unity of the practical axis, but a plurality, because this line depends not on the form of the basin, but upon the situation of the presentation in this or in that part of the pelvis, as then, from a dynamic point of view, it necessarily occupies one or the other side of vacant spaces.

"For the accoucheur the normal pelvis ought to be theoretically considered as the union of two cylinders with an elliptic section, united together at the anterior part, and encroaching more and more upon each other as they are considered at the lowest part. They are divided at the fundus by a rather abrupt bend into two portions, one vertical, which corresponds to the engagement and descent, the other horizontal, which is that of disengagement."

It is obvious, from this presentation, that the head descends in a straight line to the perineum, and then turns at nearly a right angle to escape from the vulval orifice. But if the perineum, either from structure or form, does not furnish suitable resistance in force or direction, the disengagement cannot occur normally; the driving, the propulsive force of uterine and abdominal contractions sends the head directly down upon the pelvic floor, and the resistance of that floor ought to direct it in the axis of the obstetric outlet, but this directing power fails either from want of strength in the perineal tissues, or from the vulval orifice being high up, or, in other words, from the great length and obliquity of the perineum. Under such circumstances the fœtal part lodged upon the pelvic floor there stops, and the stretched perineum is more and more thinned, has less power to turn that part toward the vulval opening, and offers also less resistance to the driving force, and there gives way.

Charpentier attributes great importance in the production of this lesion to exaggerated intensity and irregularity of uterine contraction. He states that in the observations which he has collected, it is always, or almost always, under the influence of an abrupt, energetic contraction of the uterus, aided by a violent and untimely effort of the patient that the rent is produced, and this occurs notwithstanding all attention and precaution which the accoucheur takes to prevent the accident.

In case central rupture of the perineum is recognized in labor, the accoucheur should at once divide the bridge which separates this from the vulval opening, thus permitting the ready exit of the child, and preventing the rent from extending further back to, or through the anus. After delivery, the rent is to be sewed with catgut sutures by the method of Bröse, which was described some months ago in THE NEWS. In case the accoucheur first sees the patient some hours after delivery, catgut sutures are to be used, but the bridge is not to be divided unless union fails; in case of such failure, the bridge should be divided, and the sutures reapplied.

THE ISOLATION OF THE TEMPERATURE SENSE.

THE assumption of the existence of a nervous mechanism for the transmission of thermic stimuli, as contradistinguished from general tactile sensation, cannot as yet be regarded as proven, although many clinical observations apparently speak in its favor. Several cases are on record in which, as a sequence of some more or less pronounced lesion of the central nervous system, there existed cutaneous hyperæsthesia in regard to variations of temperature, while, at the same time, no correlated exaltation of general sensibility was appreciable. Instances have also been noted in which, in a given cutaneous area, complete absence of tactile sensibility was coincident with the retention of partial thermic sensibility.

Such facts do not constitute conclusive evidence. They undoubtedly suggest the existence of distinct channels for the transmission of stimuli, but they also suggest the possibility that in certain diseased conditions the nerves involved may be better able to transmit an impulse of thermic origin than one derived from pressure, or even that a diseased sensory centre may be more receptive to one stimulus than to others.

In a most ingenious series of experiments which were first described in THE MEDICAL NEWS of May 30, 1885, and which have since been widely quoted and accepted, DR. MACKENZIE, of Baltimore, succeeded in demonstrating an apparent isolation of the temperature sense in the mucous membrane of the upper air-passages. Struck by the observations of DRS. MURDOCH and DONALDSON, who found that in cocaine anæsthesia of the cornea and conjunctiva the power of distinguishing heat and cold was retained by these parts, Mackenzie applied the same method of investigation to the mucous membrane of the oropharyngeal cavities and nasal passages. Six persons, hospital patients, were taken for the experiments. Having thoroughly anæsthetized the mucous surfaces of the soft palate, uvula, and nasal passages with a four per cent. solution of cocaine, a probe, which had been previously immersed in a mixture of ice and salt, was made to impinge upon the parts rendered insensible to contact and pain. A distinct sensation of cold was complained of in each instance. The opposite extremity of the same probe was then heated over the burner of a lamp used for laryngoscopic purposes, and in its heated condition carried over the anæsthetized areas. While absolutely no pain was felt by any of those experimented upon, there was a marked unanimity of the answers, given voluntarily, in regard to the sensation of heat. In three of the cases an eschar followed the application of the heated probe, and in one an acute pharyngitis developed; yet at the time of application no pain was felt, though the temperature sense remained intact.

At the first glance, the thesis would seem established. Here was undoubted coexistence of tactile anæsthesia with retained, though diminished, sensibility to thermic stimuli. Closer examination, however, reveals an evident and most probable source of

error. Cocaine gives immunity from pain only to that area of mucous surface to which it is applied, and to the parts immediately subjacent to a depth which, while not definitely determined, is certainly not great. Any increment or decrement of heat effected in the superficial insensitive area by the application of hot or cold metal, will produce corresponding changes in temperature, modified only in degree, in those subjacent parts to which the obtunding influence of the cocaine has not extended, with a resultant mild sensation of heat or cold with absence of pain. It is as though one held, for an instant, a live coal in the gloved hand. Here, too, would be the sensation of warmth without pain.

Before we can accept the assumption of structural differentiation for the reception or transmission of different kinds of neural stimuli, one of two things must be shown, either that there exist specific nervous end organs adapted to such purposes, or that there is some point between periphery and centre at which the destruction of nerve fibres shall produce either anæsthesia of a given cutaneous area with retention of temperature sense, or the direct converse of this condition.

THE CONGRESS CONTROVERSY AND THE CODE.

We are in receipt of the following letter from a subscriber to The News, and, although the questions asked have been fully answered many times in our columns, they are of such importance and still hold such prominence in professional consideration that they demand, at least, a brief reply.

Carterville, Ill., January 19, 1886.

To the Editor of The Medical News.

Dear Sir: What is the real trouble with reference to the International Medical Congress? Does it not have reference to the recognition and participation of the New Code men? If that is not the gist of it, what is?

Is their participation essential to the success of the Congress? Why should they be recognized in an International Medical Congress and not in the American Medical Association — how can you or any one else favor the one and not the other? I am sure these questions are interesting to many of my class.

Country Doctor.

The International Medical Congress is an organization which met first at Paris in 1867, and since, at intervals, in the principal capitals of Europe. It has no constitution and no code of ethics, and its membership is open to all regular physicians who choose to inscribe their names on the register. It is a mass meeting of the profession held for scientific intercommunication, and so broad have been the roads to acquiring membership that at both the London and Copenhagen meetings irregular physicians are known to have inscribed their names on the register, and the fact did not in the least disturb the Committee of Organization, or detract from the success of the meetings. The Congress at Copenhagen accepted the invitation to hold its next meeting at Washington, and the Committee of Organization has no right to demand any test for membership but that which the Congress has sanctioned.

It is one of the unwritten rules of the Congress, from which it has never yet departed, that it will not accept an invitation to meet in a country to which the profession of any other country is unwilling to go, or in which the profession itself is not harmonious. At Copenhagen, when the invitation to meet in America was presented, the question was expressly asked by the President, Professor Panum, if the Code controversy would interfere with the profession cordially uniting to receive the Congress, and the acceptance of the invitation was due to the assurance, by the members of the American Committee, that the Code question would not be raised. The dissensions which were aroused at New Orleans were in direct violation of our national honor, whether rightly or wrongly pledged, and they have caused the disaffection of a large proportion of the members of our profession who are from their eminence the best known abroad. This fact, we are reliably informed, will deter many foreigners, including those who have been the most active participants in past Congresses, from crossing the ocean, since one of the strongest incentives to their coming was to meet those who, as the result of the action at New Orleans, will now be conspicuous by their absence. Hence, a united profession is essential to the success of the Congress.

The American Medical Association can exact any qualification, which it sees fit, for membership in its own body, but it has no power to make laws for, or establish qualifications for membership in the International Medical Congress, and this was finally admitted by the new Committee of the Association at its second meeting in New York last autumn, when it receded from its previous position and decided that New Code men might become members of the Congress, but declared that they should not hold office. So long as the New York members of the American Medical Association meet New Coders in consultation, and in their societies, as they do every day, and coöperate with them as officers of their societies, and as fellow professors in their colleges, upon what logical ground can they object to meeting them on an equal footing in an International Medical Congress? The Congress appointed Dr. A. Jacobi and Dr. N. S. Davis to represent America in its Committee on Collective Investigation of Disease, and they are now acting together and issue circulars over their joint signatures. If these two eminent members of the profession, holding different views on the subject of the Code of Ethics, can serve together on a committee, why not any member, and on any committee, or in the Congress, or in any society which is not

governed by the Code of Ethics of the American Medical Association?

The announcement of the preliminary organization of the Congress, made by the original committee, was received by the profession at large with entire satisfaction and with every indication of cordial and harmonious coöperation. The true gist of the trouble subsequently made, was that a few medical politicians were disappointed at not receiving prominent offices, which were given, as in all previous Congresses, to the most eminent contributors to the advancement of medical science in the country in which the Congress was to meet. At the New Orleans meeting of the Association they, therefore, unexpectedly sowed the seeds of discord. They raised the question of Code and of geographical distribution of the offices, because they knew these would prove plausible motives by which to work upon the feelings of the members and to attain their own selfish ends regardless of the consequences to the profession.

Our National Code of Ethics has proved such a valuable means of consolidating and elevating the profession of our country, that by the sole act of giving it to us the American Medical Association has earned our lasting gratitude. The Code is still the corner-stone of medical progress in this country. We believe that the American Medical Association acts wisely in maintaining adherence to it as an essential qualification for membership in its own body, but its right to impose this qualification upon other societies not in affiliation with it, and, above all, upon an International society, cannot, for one moment, be maintained.

For these reasons we believe that the Code controversy has no right to be dragged into the organization of the Congress, even if it did not threaten to imperil the success of the meeting, or to bring the good name of the American profession into disgrace.

REVIEWS.

A Handbook on the Diseases of the Nervous System. By James Ross, M.D., F.R.C.P., LL.D., Senior Assistant Physician to the Manchester Royal Infirmary, etc. 8vo. pp. 726, with 184 illustrations. Philadelphia: Lea Brothers & Co., 1885.

Dr. Ross is already well known, not only as an able clinical observer, but as the author of the largest and most comprehensive treatise on diseases of the nervous system in any language. This smaller handbook he has specially prepared for publication in America, and is intended for the use of students and for such practitioners whose time will not allow the perusal of large works.

The work is divided into two parts, a general and special neurology, and a good idea of the scope and arrangement may be gathered from a summary of the contents. After an excellent anatomical and physiological introduction, the general morbid anatomy, the symptomatology and principles of treatment are considered. In the special pathology, a clinical classification has been, so far as possible, adopted, and the diseases arranged as follows: affections of the peripheral nerves; disorders of common sensation and of special sense; spasmodic disorders; atrophic paralyses; the spasmodic paralyses; disorders of motor coördination; vascular diseases of the spinal cord; myelitis; diseases of the spinal membranes; certain functional diseases of the nervous system; shock, concussion, and allied conditions; vascular diseases of the brain; encephalitis; atrophy, hypertrophy, and tumors of the brain; aphasia; diseases of the membranes of the brain; paralysis agitans; multiple sclerosis and chorea; and a final chapter upon general diagnosis and cerebral syphilis.

Not every man could have been as successful in the preparation of a text-book after having written an exhaustive work on the same subject, but in this volume Dr. Ross has succeeded in producing a work which will prove as acceptable to the general profession as his large one is to the special student of neurology,

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, January 12, 1886.

The President, Charles McBurney, M.D., in the Chair.

Dr. R. F. Weir presented a patient, thirty-eight years of age, on whom he had performed

TOTAL EXTIRPATION OF THE TONGUE BY KOCHER'S METHOD.

The case was interesting mainly with respect to the rapidity of the healing process. The operation was performed on the 8th of December, 1885, and the patient left the hospital, with the wound healed, on the 5th of January, 1886. He had had, prior to the operation, symptoms of epithelioma involving the right half of the tongue opposite the last molar teeth, for only eight weeks, and during the latter part of this time he had suffered a great deal of pain. The affected portion, about one inch in diameter, was cocainized, and sections were cut off, which gave a negative result under the microscope. To eliminate the possibility of syphilis, the patient was put upon specific treatment, but without effect. After removal of the tongue, sections made deeper in the tissue revealed true epithelioma.

After the side of the mouth had been opened by the incision under the jaw, and the tongue drawn out and split, with the idea that only one-half of it would need removal, it was found that the disease had passed so nearly to the median line, that it would be hazardous to leave any portion of the organ, and, therefore, the entire tongue was removed at the level of the hyoid bone, and the great advantage of the method of operation was thereby fully demonstrated. The patient was fed, as is customary in these cases, every three hours, with rectal enemata, consisting of beef peptonoids two ounces, and whiskey half an ounce. These were continued for twenty-four hours without additional material. The enemata were discontinued on the sixth day. On the second day he was fed by an œsophageal tube.

On the tenth day he could swallow. The tracheal tube was removed on the eighteenth day. The inframaxillary wound was closed on the twenty-sixth day after the operation.

These cases have become comparatively common; but the ability to talk, which this patient retains, was astonishing to the man himself and to those who had seen him.

An important factor in securing success in these cases is the thorough carrying out of the aseptic treatment, which is facilitated by the employment of what is called the sticky gauze, first brought to our notice by Billroth. Dr. Weir had been able, with the assistance of Mr. Marten, the apothecary of the hospital, to prepare a sticky gauze, which he thought superior to that made after Billroth's formula. Billroth's formula is as follows:

Resin	60 gm.
Alcohol (95 per cent.)	1200 "

Dissolve and add

Glycerin	50 "

Impregnate six metres of absorbent gauze, and when half dry rub in

Iodoform	50 gm.

The formula for Dr. Weir's improved gauze is:

Resin	10 parts.
Castor oil	6 "
Alcohol	15 "
Iodoform	5 "

These are mixed together, and applied to the gauze.

OSTEOTOMY OF A CURVED TIBIA WITH OSTEOCLASIS OF THE OPPOSITE SOUND FEMUR, TO OVERCOME A DEFORMITY.

DR. WEIR presented a second patient, a young man nineteen years of age, who entered the New York Hos-

pital on the 29th of September, for the treatment of a deformity of the right tibia. The deformity was due to a disease of infancy, involving the epiphyses, which resulted in a marked curvature inward of the tibia. The arrest of development was such that the tibia itself measured three inches less than its fellow, but the femora were of the same length. There was a corresponding tilting upward of the opposite side of the pelvis, and his locomotion was very awkward. The fibula was of normal length, and was, in consequence, displaced upward and backward. An osteotomy was done on the 3d of October, through the head of the tibia, and the limb straightened, but the result gave only three-fourths of an inch increase in the length. In order to get a more equal length of the limbs, the femur of the sound side was fractured by means of a Colin's osteoclast applied about the middle of the thigh, and the fracture was made transversely. It was with some difficulty that the ends of the fragments could be crowded past each other, but this was finally accomplished after the use of considerable force, and the limbs now are nearly of the same length, there being not more than one inch difference. No diminution in general height occurred.

The progress of the case had been somewhat delayed by the manipulation necessary to keep the limb with the fractured femur in proper position, but the patient is now able to walk very well with the aid of a cane, and is daily progressing.

DR. POORE suggested that fracture produced with an osteoclast is always at right angles with the long axis of the bone.

DR. WEIR thought it possible so to adjust the osteoclast as to secure an oblique fracture, but it did not occur to him that it might be required in this case until the fracture had been made, and the difficulty in overlapping of the fragments had presented itself.

THE PRESIDENT asked whether an oblique fracture could not be accomplished by subcutaneous perforation of the bone in an oblique line.

DR. WEIR thought it altogether probable that such perforation would influence the direction of the fracture, but that simpler methods would suffice.

THE PRESIDENT remarked that the result was admirable, inasmuch as the extraordinary deformity was very perfectly corrected. Dr. Weir's case reminded him of one which presented the opposite result with regard to the length of the limb. It occurred in a man thirty-nine years of age, who, twenty-one years previously, from some injury to the leg, suffered from apparently a diffuse periostitis, and, in consequence, according to the history, he had eleven inches of the tibia removed. Whether this was precisely correct or not, Dr. McBurney was unable to say, but certainly a very large piece was taken away, judging from the present condition of the limb. The patient had used the limb more or less since, with occasional outbreaks of inflammatory swelling, and the escape of small fragments of dead bone. He came to Dr. McBurney with superficial necrosis of the new bony deposit. The entire bone was very much thickened, nearly double the normal width and thickness, and one inch and a half longer than the tibia upon the opposite side. He had not met with a case which showed such a marked increase in the length of that bone. The fibula also seemed to be enlarged. It was difficult to say with reference to that, because the thickening of the tibia was so great that the two bones made nearly a solid column; it was only at the lower portion of the leg that the outline of the fibula could be made out at all.

DR. L. M. YALE recalled a very singular condition existing in a well-known surgeon, formerly of this city, namely, one tibia fully an inch longer than the other. He also wore one boot two sizes larger than the other, and, in sitting, the longer tibia carried the knee up higher than the other, but the femur of that side was correspondingly shorter, and the two limbs were of about the same length. The patient regarded it as an abnormality of development, because he knew of no history of disease to account for it.

DR. C. K. BRIDDON then reported the following

CASE OF NEPHRECTOMY.

Mary Smith, aged thirty-six, native of Ireland, married, was admitted to the Presbyterian Hospital, July 1, 1885. She had enjoyed good health until a few months ago, when she began to suffer from pain in the right side of the abdomen, it was of a continuous character and never paroxysmal; at the same time it was noticed that her urine was turbid, there was no increased frequency in passing it, and there was no hypogastric pain; she was much annoyed by vomiting, headache, and fever. Rest, and the use of emollient cataplasms, sufficed to relieve her for the time, but on resuming her duties in the house the troubles returned.

Physical examination detected nothing of importance in the cavity of the chest.

In the right side of the abdomen was a tumor filling the lumbar region, and reaching to the median line; it had somewhat of the form and configuration of the kidney; it was dull on percussion, the dulness above being continuous with that of the liver; over the lower anterior and inner borders was a line of resonance.

Urine averaged twenty ounces daily, one-half its volume was composed of pus, its specific gravity was 1.018; it was acid and albuminous, but contained no casts.

The diagnosis was pyelonephritis.

July 29.—Tumor has increased in size, it reaches one inch to left of the median line, causes bulging in the lumbar region with some abdominal protrusion; vertically it extends from the tip of the eleventh rib to the anterior superior spine of the ilium; has no acute, but dull continuous pain, and some tenderness on pressure; she has evening exacerbations of temperature, secretion of urine scanty, one-half pus but no casts. The diagnosis was confirmed, the propriety of making an incision in the loin was discussed, favorably entertained, and advised. It was proposed to do a nephrotomy, but preparations were made to substitute nephrectomy if conditions were found to call for it. The patient was prepared by the daily use of baths and the administration of aperients, and the operation was done August 1st with strict adherence to all the details of the antiseptic system, and under the influence of ether.

The lumbar region was made prominent by the use of sand bags, the usual transversely oblique incision was made below the lower border of the last rib, and there was not the slightest trouble in exposing the kidney, which was quite superficial; on opening its capsule, it felt solid, and non-fluctuant, its posterior dimensions were such, that with the index and middle fingers insinuated between the capsule and the gland until the knuckles were in contact with the transverse processes of the vertebræ, it was found impossible to reach the hilum. It was at once determined to remove the organ through an incision in the abdominal walls. After the necessary changes in the position of the patient, an incision about eight inches long was made along the external border of the right rectus muscle. When the peritoneum was reached, a few bleeding points were controlled, and the serous sac was opened; the tumor was at once exposed, its lower part crossed obliquely by the ascending colon, and little else was seen of the intestines, which were kept well within the abdominal cavity by the use of flat sponges.

The peritoneum covering the kidney was next exposed and incised, coming down at once to the capsule, which was opened to about the extent of three inches, this tunic was then separated from the organ, and there was no difficulty in doing so, except at one point on the anterior wall, where it was adherent, and in separating this adhesion the cavity of an abscess was opened. As soon as means were instituted to guard against the entrance of pus into the peritoneum, the cavity was enlarged permitting the escape of about eight ounces of pus; it was entirely emptied, its walls disinfected, and when it was filled with a sponge charged with antiseptic, the operation was proceeded with, the kidney was drawn through the opening in the abdominal walls, and an inspection of its pedicle presented conditions of interest. It was, including the reflected capsule, nearly two inches in diameter. It was not at this stage possible to recognize its different constituents, the only thing that could be distinguished was the presence of a hard body that was believed to represent a calculus. A limited incision was then carried round the pedicle, passing through infiltrated tissue that was probably capsule; a ligature of strong silk was then passed round and secured; it was then transfixed by a second that was secured on either side, and as the size of the pedicle warranted the suspicion that it might shrink so much as to permit hemorrhage, an elastic ligature was applied on the proximal side of the others; the ends of the elastic ligature were cut short, the ends of the others were left long, and they were passed through a drainage tube in the loin; the opening in the posterior wall of the peritoneum was then closed by a continuous suture, shutting off the cavity from which the kidney was removed, from that of the peritoneum, leaving the capsule, stump, ligatures, and drains continuous with the opening in the loin. There was very little exposure of the peritoneum, only that in the immediate vicinity of the operation; its toilet was made as perfectly as possible, and the abdominal wound was closed by three lines of sutures, one for the peritoneum, one for the muscular and aponeurotic structures, and one for the integument. Irrigation was made during the operation with Tiersch's solution, a layer of iodoform gauze was placed over the wounds, the whole supplemented by a dozen layers of mercuric chloride gauze and a quilt of jute.

The patient rallied well after the operation, and was not annoyed by vomiting. At 10 P. M. temperature in the rectum was 101°, pulse 120.

Aug. 2.—Temperature reached 102° in the night; at 9 A. M. it was the same; no vomiting or abdominal pain. Up to 7 A. M. nine ounces of urine were passed; it was albuminous, contained ten per cent. of pus, and hyaline and granular casts. She was ordered only sufficient

morphia to quell pain, and was sustained by nutrient enemata.

3d.—Patient rested fairly well during the night but this morning she has been annoyed by nausea and eructations of biliary matter; there is very slight distention of the abdomen; temperature has fallen one degree, and pulse remains at 120; she has passed seventeen ounces of urine during the past twenty-four hours, it contains but little pus, is acid, specific gravity 1.025, albuminous, and contains hyaline and granular casts. During the day the vomiting became more frequent, coffee colored, or more like porter diluted with water; very slight distention of abdomen, only slight tenderness in the immediate vicinity of the operation wound.

4th.—Condition unimproved, vomiting not relieved by sipping hot water or iced champagne. She was ordered hourly drop doses of creasote; toward noon the temperature went up to 103°, the vomiting ceased after the first dose of creasote, but she went rapidly into collapse, which was not influenced by the prompt use of cardiac stimulants, including the hypodermatic use of camphor dissolved in ether, and she died at 9.30 P. M. seventy-eight hours after the operation.

The kidney removed by the operation was found to be the seat of multiple abscesses; most of these were of considerable dimensions, the largest would have contained an ordinary-sized lemon; they communicated one with another, and through their intercommunication opened by a small orifice into the dilated pelvis; the latter was occupied by an umbrella-shaped calculus weighing 125 grains, and measuring one inch and a quarter by one inch; the nucleus of this was a perfect oval, which had evidently lain transversely across the opening of the ureter, and the expanded portion was formed by accretions around this, forming an incomplete cup for the nucleus, the stem projecting into the ureter; there was a second small oval calculus, and a fragment in one of the abscesses.

When all the cavities had been emptied by expression, and after the organ had shrunken in strong alcohol, it measured vertically six inches, antero-posteriorly four and a half, and transversely three and a half inches.

Autopsy was made on the 5th, about twelve hours after death. It was necessarily incomplete, as it could only be made through the operation wound; the margins of the incision in the abdominal walls were firmly agglutinated; there was no fluid effusion in the cavity of the peritoneum; not a trace of any but conservative processes, save at one point where there was a very insignificant adhesion, between the lower border of the right lobe of the liver and the colon, it was difficult to detect the line of incision in the peritoneum covering the cavity from which the kidney had been removed, so perfect was the process of repair. The stomach was enormously dilated, and filled with fluid similar to that which had been vomited during life. The ureter on the right side was not dilated. The wound in the loin looked well. The stump of the kidney was much reduced in size, and was free from odor—in fact, there appeared to be an entire absence of such conditions as would be likely to cause septic infection.

Report of condition of left kidney by Dr. William H. Porter, Curator. The kidney received for examination was larger than normal and weighed about six ounces (170 grammes); it was pale in color, the capsule a little thickened, and slightly adherent in places to the underlying renal tissue; the surface of the gland, however, after enucleation was fairly smooth.

The cut surface showed both the cortical and pyramidal portions to be enlarged, the former being twice the normal thickness. The markings of the cortical arches were straight, and the parenchyma had a pale granular and fatty look to the unaided eye.

Microscopic Examination.—The epithelial cells, both of the straight and convoluted portions of the uriniferous tubules, showed the protoplasm to be in a state of coarsely granular metamorphosis, which had caused the cells to become swollen and in many places the lumen of the uriniferous tubules was obliterated, while at other places the epithelial corpuscles were becoming necrotic, and detached from the underlying basement substance. At points in the section there was marked evidence of an increase in the intertubular tissue, which in all probability had existed for some time, and was of slow formation and chronic in nature.

The lesion therefore was double, or a chronic diffuse nephritis, upon which a rapidly progressing acute parenchymatous metamorphosis of the epithelial cells had been superinduced.

Remarks.—The first important feature in the history of this case will be found in the absence of such symptoms as are commonly regarded as sufficient to warrant a suspicion of calculus. Pain was not a prominent feature, and was at no time characteristic; there had been some complaint of dull, obscure, fixed, and deep-seated pain in the lumbar region, but at no time was it of a radiating character, and she experienced none of the severe paroxysms which indicate the descent of a calculus from the kidney to the bladder. Of course, it is well known that in exceptional cases there has been an entire absence of such symptoms as could be referred to the kidney. Cases are reported in which large concretions have been found after death, but in which no suspicion of such condition was entertained during life. In very many cases the signs are obscure, in some pointing more to the bladder than to the kidney.

In this case, pain was complained of only a few months before she applied for treatment, and yet the size of the stone would appear to indicate that it had existed long before such symptoms manifested themselves; in fact, the case was looked upon as one of suppurating kidney, and the existence of stone as an exciting cause was scarcely entertained.

The condition of the opposite kidney was a matter for serious consideration. In a paper read before this Society, "On the Causes of Death in Cases of Abdominal Surgery," in October, 1883, a prominent position was given to the influence exercised by inefficient action of the kidneys, on the result of such operations. In the *Annales des Mal. des Org. Génito-urinaires*, No. 5, 1885, is an interesting account of investigations made by Dr. Thiriar, on the condition of the urine after abdominal operations; the result of such observations goes to prove that when the quantity of chlorides in the urine falls below fifteen and a half grains a day, septic peritonitis is threatened.

The amount of urine passed by the patient had been small; there had been no symptoms of obstruction of the urine on the side affected, so we had no opportunity to estimate the condition of the secretion derived from

the opposite side. Catheterism of the ureter was not used, and we had no means of employing the method of Tuschman, concerning which Mr. Morris, in a discussion before the Medical Society of London, is stated to have said "that he was not able to speak of it with confidence." It consists in compression of one ureter by an instrument specially adapted to the purpose. In the absence of such methods of precision, we had to conclude that, from non-existence of tumor on the opposite side, and the absence of toxic symptoms, that the other kidney was in a sufficiently healthy condition to bear the additional tax that might follow the destruction of its feliow.

As stated in the history of the case, the operation was to be explorative in character, the subsequent steps to be determined by conditions found upon making a preliminary incision in the loin. It might have been possible then to have aspirated suppurative foci, but the posterior half of the organ was so apparently solid that the determination of fluctuation was not sufficiently marked to suggest the use of the needle. It might also have been possible to detect a calculus by acupuncture; but I thought that, inasmuch as I could not feel the pelvis with the whole length of the finger buried in the wound, that puncture would be useless. This subject of the selection of the proper operation has occupied the minds of those engaged in this department of surgery, and expressions of opinion have been various, but I think that the very able, and exhaustive analysis made from the reports of a large number of cases by Dr. Samuel W. Gross, and published in the *American Journal of the Medical Sciences*, for July, 1885, has settled the question, and I quote with pleasure the following extract from that portion of the article which refers to the suppurative conditions.

"It will thus be seen, that of 73 nephrectomies for suppurative lesions from all causes, 41 recovered, and 32, or 43.97 per cent., died. Of 93 nephrotomies, on the other hand, 71 recovered, and 22, or 23.65 per cent., died. It, moreover, appears that of 12 nephrectomies after a previous nephrotomy, only 1, or 9.33 per cent., succumbed, while of 61 nephrectomies without preliminary incision and drainage, 31, or 50.81 per cent., perished. In other words, the mortality of removal of the kidney for suppurative conditions is nearly twice as great as after nephrotomy, and a preliminary nephrotomy diminishes the risks of nephrectomy by 41.48 per cent. Hence we may conclude that a suppurating kidney should never be excised until after the failure of nephrotomy, the only inconvenience of which is that a permanent sinus or urinary fistula remains in 29.57 per cent. of the recoveries, either of which may, however, should it prove a source of discomfort, be remedied by subsequent lumbar extirpation of the shrunken sac, with the risk of only 9.33 per cent. In favor of a preliminary nephrotomy, it is also to be declared that it enables us to determine with almost a certainty the condition of the opposite organ, that is to say, if, after a few days of drainage, pus ceases to appear in the urine, the probability is that the other kidney is sound."

With a full knowledge and appreciation of these conclusions, it may be asked, Why was not the kidney incised in the present case, and why was the abdominal substituted for the lumbar section? In answer to the first question, it must be stated that the pathological conditions were not recognized in the loin operation; and in answer to the second, I must express the opinion, that I think it would have been impracticable to remove so large a tumor through the first incision, which was obliquely transverse, and which I prefer to the vertical incision, so ably advocated by Dr. Lange, in an article on "The Surgical Anatomy of the Kidney," published in the *Annals of Surgery*, 1885, an incision which suffices admirably for the exploration of the pelvis, and for the removal of calculi from moderate-sized kidneys, but which, for the removal of a large kidney would necessitate such extension upward as would trench on the domain of the pleura, especially in the not uncommon cases where the last rib is rudimentary, and in which cases the pleura is prolonged outward to the lower border of the eleventh rib. The oblique incision may easily be supplemented by a short vertical, or its terminal end may be prolonged into a V.

I think there are decided advantages in making an opening in the loin for drainage in cases where the abdominal section is determined upon. It only slightly complicates the operation, and permits of perfect closure of the peritoneum with efficient outlet for discharge, and an equally efficient inlet for antiseptic irrigation when it may be required.

The impetus given to the surgery of the kidney by the successful interference in cases of calculus, and the intelligent observation and interpretation of conditions that occasionally follow such operations, has led to achievements which I think may be truly regarded as triumphs in the practice of our art. I refer to the case which recently occurred in Guy's Hospital, in which McClement Lucas removed a hydronephrotic and calculous kidney, and in which case, after a complete recovery, the patient began to suffer pain in the opposite organ, rapidly followed by suppression and uræmic intoxication. Mr. Lucas cut down on the kidney, removing a calculus from the pelvis, which was followed by a free discharge of urine, and recovery. Very similar was the case reported at the last meeting of this Society, in which Dr. Lange had done a nephrectomy, which some time after was followed by symptoms of acute anuria, and in which an exploration of the pelvis of the remaining kidney enabled the operator to remove an obstruction from the ureter, and thus saved his patient from impending dissolution.

DR. POST presented a photograph he had lately received, and which represented the present condition of a patient on whom he had operated for

EPITHELIOMA OF THE LOWER LIP

one year ago. The disease was extensive, and involved a little more than the left half of the vermilion border of the lip, and extended into the cheek a short distance beyond the angle of the mouth. The two lips appeared very nearly equal.

The operation was performed as follows:

A horizontal incision was made from the left angle of the mouth to a point beyond the morbid growth, and a vertical incision was extended downward from the left extremity of the horizontal incision. Another vertical incision was made on the right side of the median line, and the two vertical incisions were joined by a second horizontal incision below the level of the disease, and the tumor was thus removed. The two horizontal in-

cisions were extended to the left so as to include a large flap which was drawn to the right so as to meet the remaining portion of the lip on that side. The upper margin of the transplanted flap was provided with a vermilion border by stitching the mucous membrane to the skin. To prevent the puckering of the integument, and to give symmetry to the two lips, a triangular portion of the cheek was removed, the base of the triangle being on a line extending from the left angle of the mouth outward into the cheek to the extent of two centimetres, and the apex being at a point two and a half centimetres above the base. The parts were secured in apposition by pin sutures and fine silk. The operation was a modification of Burow's.

THE PRESIDENT said it had seemed to him that in similar operations for restoring the lower lip it is only necessary to remove the thickness of the skin, not even including the muscular tissue. If the skin alone is removed, the flap will fit, the muscular substance will contract, and the mucous membrane will take care of itself.

DR. POST said that he retained only such an amount of mucous membrane as was necessary to restore the vermilion border of the lip, and the result had been to make the two lips almost symmetrical.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Annual Meeting, January 18, 1886.

THE PRESIDENT, C. A. LEALE, M.D., IN THE CHAIR.

DR. LAWRENCE J. MCNAMARA, Instructor at the Carnegie Laboratory, read a paper entitled

A STUDY OF THE ETIOLOGY OF TUMORS.

It was intended, he said, as an examination of some of the existing theories on the subject, and an attempt to adapt them to the various forms of tumors, which he had personally investigated. The existence in the body of an independent growth, distinct in its histological elements from the surrounding matter, drawing nutriment from the general system, and liable at certain periods of development to infect the organism, has always been a perplexing, though fascinating subject to the observer. Advances in histological work have enabled us to make a partial classification of these new growths, according as they are formed on some type of existing normal tissue, as epithelial, muscular, nervous, or connective tissue. This group of neoplasms, under which are ranked tubercle, syphilis, glanders, etc., has a distinct place as formations of an infectious origin; and are no longer considered as tumors similar to those now under discussion.

The class of tumors formed after types of normal tissue which are most frequently brought to the notice of the surgeon are sarcoma and carcinoma. These are distinguished from tumors of a benign character, by secondary formations or metastases, and the tendency to recur when removed. These metastatic or secondary deposits bear the same relation to the structures in which they have found a resting-place as did the parent tumor. They assume the changes in growth, development, and invasion of organs identical with the primary growth. The channels of infection are the lymph and blood. In the ordinary cases of carcinoma, examination of the advancing mass shows infiltration of the normal tissue by epithelial cells. The lymphatics are found plugged with epithelial elements, and the glands contain the same distinct cells. In this formation, at least, it is unnecessary to imagine a virus, transmitted to the body from without, as the cause of the proliferation.

There can be no doubt of the malignancy of cancers. The metastases, however, are always of epithelial formation, similar to the primary cancer, and the epithelial cells resemble one another in shape and appearance. The important fact lies in the misplaced epithelial cell. Like the forms of vegetable life, the cell is influenced in its activity by the nutriment which surrounds it; and a modification of this condition leads to a change in its activity. The epithelial cell, if placed in a tissue receiving more nutriment than its own, must, undoubtedly, show some changes in its activity. The transplanting of the spur to the comb of a cock is a familiar example. In some cases of cancer of the breast it seemed to him that he could make out a distinct connection between the swollen epithelium of the duct and the cells beyond, and this fact has been mentioned by others. The epithelium in the connective tissue and the duct seemed identical in form and appearance.

The diagnosis of cancer cannot be made until the epithelial cells form nests in the connective tissue. If this epithelial element does not come from the proliferating interpapillary processes, it may have existed previously; and to suppose this is to admit the embryonic theory of Cohnheim. The arguments advanced by its originator offer very convincing proof of the etiology of many complex tumors, like the sacral teratomata, the mixed tumors of the parotid, dermoid cysts, etc. Applied to the sarcomatous group of tumors, the theory has no direct proof of their embryonic origin. There cannot be as much reason for accepting the belief that epitheliomata of the lips, pylorus, or rectum, originated from an embryonic epithelial cell displaced and started in growth by continued irritation, as believing that irritants may cause the invasion of the connective tissue by the proliferated epithelial elements.

In sarcomatous growths, however, more difficulty is experienced in accepting this embryonic theory. Until proof can be furnished that these embryonic cells exist in the body and develop into a distinct tumor under favorable circumstances, the theory of Cohnheim cannot be logically entertained. The transplanting of embryonic cartilage to the adult animal, and its development into a tumor, proved, he thought, the fact of the power of embryonic cells to live and multiply in a mature matrix. It is conclusive, however, that the embryonic cells will grow in the mature organism under favorable conditions. Another difficulty in determining the embryonic foci is the similarity under the microscope of embryonic cells, the round cell of inflammation, and the small cell of sarcoma.

Having quoted from Billroth in the summary of his remarks on the etiology of tumors, Dr. McNamara remarked that the perplexing theory of predisposition as the cause of tumors is found in many of the theories; and said that it serves the purpose of hiding their defects and increasing the obscurity in which the cause of these neoplasms lies. Malignant growths have often been compared to the infective granulomata in their course and development. The changes which occur in these infective neoplasms, such as necrosis and the like, may find

counterparts in the malignant deposits of tumors. Clinically, there are other points of resemblance; but the infective granuloma, besides possessing the power of invasion of tissues, may be inoculated. Clinical efforts or experimental works have not been able thus far to connect a bacterium with the cause of tumors.

Still, the infectious origin of sarcoma possesses at present great attractions. The discovery of a vegetable growth as the cause of actinomycosis has some bearing on this subject; and actinomycotic tumors were called, before their parasitic nature was proved, osteo-sarcoma, tuberculous tongue, etc. Sarcoma, when rapidly growing, presents changes of a similar character in the reactive appearance of the cells. If this variety of tumor is caused by a microörganism, it must be of a nature which requires very favorable conditions for its development.

If a microörganism be considered as the cause of carcinoma, the question why it should affect the epithelial cells alone, does not seem capable of explanation. Microörganisms cannot produce an epithelial or connective tissue cell; since one being cannot form another higher in the animal economy than itself. The action of the microörganism is of an inflammatory character, specific in its nature. In carcinoma the inflammatory changes represent the action of the cellular matrix. The same may be said of sarcoma. The hyperplasia of the matrix is but an indication of the efforts of the tissue to cast out or destroy the foreign body. In conclusion, he remarked that it seems that to no one theory can be assigned the production of these tumor-growths.

DR. J. W. S. GOULEY thought that Dr. McNamara's position concerning the question of microörganisms was well taken, and said it was his belief also that it is not likely that a microörganism can end in an epithelial or any other kind of cell. The cell itself is sufficient to give rise to the mischief which is excited in cases of advanced cancer.

THE PRESIDENT remarked that the author of the paper had, with a single sharp stroke, thrown aside the theory of Darwin, when he stated that one being could not form another higher in the animal economy than itself. He then related a case in which he removed a schirrus of the breast, where three of the patient's sisters died of cancer. The family history showed that the father, who was a resident of Richmond, Va., had died of a "tumor of the stomach," the exact nature of which could not be ascertained, and that the mother had died of a "tumor of the liver." In this patient the cancer did not return in the breast, but three years after the removal of the mammary growth she died of metastatic cancer of the liver; the lungs being also finally implicated. One sister had cauliflower cancer of the uterus, and another schirrus of the uterus. It was a curious fact, that the trained nurse who attended the lady whose breast he removed also had mammary cancer. One year afterward he removed this also, and a year after that, the axillary glands. It would be of interest, he thought, to know whether it was possible that there could have been a transmission of the affection from one individual to another in these cases.

DR. DANIEL BROWN related a case which he thought might serve to throw some light on the etiology of tumors. A young lady twenty-two years of age, residing in Eastern Pennsylvania, fell on a doorstep and slightly bruised her hip. Afterward no further effects were noticed for some sixteen or eighteen months, when she began to suffer considerable pain in the part. It was at first supposed that she had rheumatism; but afterward a diagnosis of hip-joint disease was made, and a blister was applied. In a few weeks she became unable to walk, and now a small tumor made its appearance over the head of the femur. This growth gradually increased in size, and it was found to be an osteo-sarcoma. The patient was brought to New York and placed under Dr. Brown's care, and at this time the tumor measured twenty-eight inches in its longest diameter, occupying the whole of the ilium, together with the upper fourth of the femur. The late Dr. James R. Wood saw the case in consultation with Dr. Brown; but it was thought best not to perform an operation. The patient finally died, and the growth was found to weigh between forty and fifty pounds. The chief interest of the case lays in the apparent development of this enormous tumor from so slight a cause.

DR. MCNAMARA said that the occurrence of several cases of cancer in one family, as mentioned by Dr. Leale, might be due to predisposing causes, such as climatic influences, etc., to which they were all equally exposed.

DR. FRANK GRAVES presented some interesting pathological specimens for Dr. Janeway, who was unexpectedly prevented from being present. The first case was one of

EPITHELIOMA OF THE ŒSOPHAGUS,

in which there resulted a stricture of the latter four inches in length. Both recurrent nerves were involved, and during life there was paralysis of both vocal cords; neither abduction nor adduction being well performed. Another interesting feature of the case was that the first symptoms appeared after the patient had swallowed a piece of bone, which he supposed had become lodged. Tracheotomy was performed by one of the house physicians of Bellevue Hospital, in order to avert impending suffocation from the laryngeal symptoms. He died as the result of exhaustion, as he was unable to swallow food, and had great distress in respiration. At the autopsy there was found dissemination of the cancer in the liver, lungs, and bronchial glands. The main point of interest in connection with the case was, from the comparative rarity of the circumstance, the implication of both recurrent nerves by the pressure of the growth.

The second case, the specimens from which were presented, was one of

PRIMARY TUBERCULOSIS OF THE KIDNEY.

There was pyonephritis, and the right ureter was obstructed. The inflammatory process had extended from the kidney to the bladder, which was found in a condition of tubercular cystitis.

DR. GOULEY inquired whether there was any history in the latter case.

DR. GRAVES replied that there was not; the patient having been brought into the hospital *in extremis*. Very few tubercles were found in the lungs, and he thought that there could be no doubt that it was a case of primary tuberculosis of the kidney.

DR. GOULEY thought that the question might be raised whether the tubercular trouble did not commence in the bladder, rather than the kidney. In at least two cases of his own, both of which terminated fatally, such was the case; and in one or two others the tubercle commenced in the urethra. One of his cases he had the opportunity of following up for a year. It commenced apparently with a mild cystitis, and this gradually became more aggravated, until the ureter and kidney were involved. The tubercular character of the trouble was not, however, at first suspected.

DR. GRAVES said, in reply, that in this case the trouble in the bladder was clearly secondary to that in the kidney, since, in the latter, the disease was much further advanced than in the bladder; while the ureter was open at its lower extremity, where it enters the bladder, but above, toward the kidney, it was occluded.

ELECTION OF OFFICERS.

The annual election of officers resulted as follows:

President.—Dr. Charles A. Leale.

Vice-President.—Dr. John Shrady.

Recording Secretary.—Dr. P. Brynberg Porter.

Corresponding and Statistical Secretary.—Dr. Glover B. Arnold.

Treasurer.—Dr. E. S. F. Arnold.

Members of the Executive Committee.—Drs. John H. Hunter and C. S. Wood.

After the meeting there was a collation and social reunion in the Library of the New York State Medical Association in the Carnegie Laboratory.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, January 7, 1886.

THE PRESIDENT, B. F. BAER, M.D., IN THE CHAIR.

DR. HOWARD A. KELLY exhibited recent specimens of

PYOSALPINX, HYDROSALPINX, AND PAPILLOMA OF THE HILUM,

with gelatinoid thickening of the Fallopian tube. The histories of the cases will be given at some future time.

DR. GOODELL stated that while he recognizes the necessity for operation in pyosalpinx, he does not think it necessary in hydrosalpinx. He now refuses to operate in some cases of cystic disease in which one ovary may contain a cyst as large an an orange, or in which the tube may be distended to the size of a sausage, when the sufferings of the patient and her general symptoms are not severe enough to warrant the operation. In many of these cases the symptoms may all be removed by the rest treatment, and it should first be tried. Small cysts are frequently found in ovaries, especially when fibroids are present, but they do not necessarily develop into large ones. In many cases the cause of pelvic symptoms can be diagnosticated by exclusion only, and even when small cysts or dilated tubes can be felt, treatment should be first tried and will be sometimes successful without operation. He thinks the error of the present time is in the direction of too much surgical interference.

DR. MONTGOMERY remarked that there is a class of cases suffering from small ovarian cysts or distended tubes, in which the rest treatment or any other loss of time could not be thought of, and in which operation seemed imperative. This is on account of the pecuniary condition of the patient, who may be self-supporting, or may be the only support of others. The suffering and exhaustion of the disease incapacitating them from work, relief is imperatively demanded, and he considered operation justified.

DR. GOODELL recognized this element of poverty, and has operated for this reason in some instances. He was led to make his remarks by a case now under his care. A lady was sent to him for operation after an opinion had been given by an experienced gynecologist of another city, that relief could be attained by operation only. On one side the ovary was enlarged and the other ovary was prolapsed and tender. Rest treatment had wholly cured her. In these remarks, he meant to cast no reflection on any of Dr. Kelly's cases. Pus was present in all of them, and operation seemed to be demanded in all.

DR. BAER had been strongly impressed lately with the views expressed by Dr. Goodell. Dr. Baer thought all conservative means should be tried before operating.

DR. KELLY replied that he had presented the specimens purely from an anatomical and pathological standpoint, and that he will give the histories at some future time, when the results of operation are well demonstrated. In each of them operation was imperatively demanded to save life. It is in such cases as those presented this evening that the great work in the future must largely lie. If the details of ovariotomy have been perfected, in such cases as these the chapter is only being opened. They are not examples of Battey's operation or Tait's operation, but stand as representatives of classes of disease well defined with equally well-defined indications for treatment. The extraordinary difficulty of digging such masses as these out of the pelvis makes operative interference very fatal, although it is the only resort.

DR. WM. GOODELL read a paper on

A YEAR'S WORK IN LAPAROTOMY.

(See page 117.)

DR. MONTGOMERY thought Dr. Goodell should be congratulated upon his success, which is remarkable for operations in unselected cases in the United States. He thought the knowledge of the safety attending the application of Monsel's solution to oozing abdominal surfaces very gratifying. He would have used it recently, but for the fear of bad after-effects. He must, however, again enter his plea for the second ovary. In young women small ovarian cysts are common; they are frequently found in post-mortem examinations when there had not been the slightest evidence during life of their presence; and evidently these small cysts do not necessarily develop into large ones. The two cases of secondary ovariotomy reported by Dr. Goodell, are not sufficient to warrant the rule of removing the second ovary when it is but slightly diseased. As a counter weight to Dr. Goodell's cases, he would mention that in the instance of a young married woman from whom he removed an ovarian tumor, and in which he left the other ovary, which was slightly affected, pregnancy has since occurred, followed by the delivery of a living child.

DR. KELLY remarked that Dr. Keith had had remarkably good results from the application to oozing surfaces

of a solution of pernitrate of iron. He has observed the gradual disuse of carbolic acid in washing waters in operations. Dr. Kelly prefers boiled or distilled water as used abroad, as he is sure that carbolic acid and other germicides are frequent causes of poisoning, and bad results after the operation. He asked Dr. Goodell what were his rules respecting the use of the drainage tube.

Dr. Baer had experimented with Monsel's solution. In one case in which he used it, he attributed the fatal result to it. The coagulation by the iron is unsightly, and he should now consider it a last resort. He had had very good results from pressure by packing sponges against the bleeding points combined with external pressure. He withdraws the sponges at the last moment before tightening the sutures, and then bandages the abdomen tightly.

Dr. Goodell remarked that Dr. Montgomery was perfectly right in his defence of the second ovary, and he himself had performed double ovariotomy in only seventeen cases of the twenty-eight. He did not believe that every ovary studded with cysts would inevitably degenerate into an ovarian tumor. So in the case of slightly diseased ovaries in young married women he would be disposed either to let them alone or to remove the diseased portion only. But in women approaching the climacteric, or where other conditions make it advisable, he would remove the second ovary as useless in itself, and as a possible source of future trouble. He had used the drainage tube but three times during the past year: once in the unfinished case of oöphrectomy, again in the case of torn bladder, and in the case requiring over thirty ligatures, and with universal adhesions. In general, he uses it when a free oozing of blood is to be expected, but he regards it as a source of trouble, and removes it as soon as possible.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, January 21, 1886.

The President, A. Jacobi, M.D., in the Chair.

REFLEX SYMPTOMS IN NASAL AFFECTIONS.

Dr. E. Gruening, of the Section on Ophthalmology, opened a discussion on this subject.

He said that, in his remarks, he would exclude ocular affections resulting from extension of catarrhal processes from the Schneiderian membrane. Having mentioned that hemicrania and asthma have been cured in a considerable number of instances by the removal of sources of irritation in the nasal passages, as reported now by many observers, he remarked that to the ophthalmologist the reflex apparatus of the nose is of very great interest. The connection between the latter and the eye is intimate, and the relations of the two are reciprocal. Thus, irritation of the nasal mucous membrane frequently produces lachrymation and other eye symptoms; and in the case of certain irritable eyes, exposure of the organ to a strong light brings on attacks of sneezing. Knowing that ocular symptoms are met with in connection with nasal affections, we may reason, *à priori*, if there is no other apparent cause, that the former are dependent on the latter; and if, after appropriate local treatment, the eye-symptoms still persist, we may conclude, *à posteriori*, that such is the case.

In simple cases the instillation of cocaine into the nostrils often affords a satisfactory test as to whether the ocular trouble is dependent on nasal irritation or not; for if it affords relief to the eye symptoms, we may conclude that the latter are to be attributed to the condition present in the nose. Dr. Gruening then related several cases of his own, as examples in which the eyes were affected for many years in consequence of comparatively mild affections of the nasal mucous membrane, and in spite of the most persevering and skilful treatment, directed to the ocular condition; but in which the eye trouble promptly disappeared as soon as the nasal affection was removed by appropriate treatment.

All the cases, however, were not of this simple class, and he then related several in which the reflex eye symptoms were due to more serious pathological conditions of the nasal cavities. In them also the eye trouble disappeared as soon as the source of irritation in the nose was removed. In one instance where the patient had suffered for many years, the eyes were permanently cured on the very day that a large mass of hypertrophied tissue was removed from the nose. During the past two years he said he had met with some two hundred cases in which he could refer the ocular symptoms to nasal trouble; but the treatment, which varied according to the circumstances of the case, was not always successful. In most of the unsuccessful cases, however, the patients had disappeared before the treatment was completed, or perhaps was fairly commenced. Still, in about one hundred and fifty of the two hundred cases complete relief had been afforded by the removal of abnormal conditions of the nasal passages.

Among the symptoms mentioned as most frequent in these cases of reflex eye trouble are: Burning and smarting sensations in the eyes, more pronounced in the morning; inability to fix an object in ordinary daylight; irritation and gluing together of the lids; extreme sensitiveness to cold and wind; lachrymation. Other characteristics were; inefficiency of ocular treatment, and inefficiency of nasal treatment, even in spite of the absence of nasal symptoms.

Dr. Thomas E. McBride related five cases which he thought served well to illustrate the general subject under discussion. The first was that of a gentleman who consulted him in 1882 for well-marked migraine. The attacks were thoroughly characteristic and lasted for about eighteen hours, leaving him completely exhausted. In addition to appropriate hygienic and dietetic measures, he placed the patient on the use of arsenic and extract of cannabis indica. The former he gave up in about six weeks, but the latter he continued, in increasing doses, for fourteen months. By this time the seizures were less frequent than formerly, but the patient had become disgusted with the cannabis indica, and complained that it made him sick. Indeed, he had suffered from almost constant nausea. In consequence, this remedy was withdrawn, and he was placed on the use of bromide of sodium, under which the attacks of migraine became still less frequent. While in Europe, however, he chanced to come into the hands of Hach, who discovered that he had post-nasal catarrh; and the successful treatment of this completely and permanently cured the migraine.

The second case was that of a boy of eleven years of age, of neurotic family history, who for several years

had suffered greatly from headache, which was always much worse in winter than in summer. It was frontal in character; and it having been discovered that he had nasal catarrh, he was placed under treatment for this, and afterward had no more headache.

The third case was that of an unmarried lady, also of neurotic antecedents, who was affected with lithæmia, and suffered from neuralgia and headache. The latter was situated in the upper part of the forehead, and extended toward the vertex. She was referred to Dr. Lefferts, who found that she had hypertrophy of the mucous membrane of the inferior turbinated bones; and the appropriate treatment of this condition put an end to her headache and neuralgia.

The fourth case was that of a married lady of fifty in whom the menopause had occurred at the age of forty. She suffered from hemicrania and hay fever; but was cured by the local treatment of the nasal mucous membrane by a rhinoscopist.

The fifth case was that of a married lady who suffered from difficulty of deglutition and the regurgitation of food into the mouth after it had been swallowed. Four years ago she was treated in Europe for post-nasal catarrh, which is still not entirely relieved. Gastric catarrh also was undoubtedly present. Dr. McBride placed her on the use of iron and arsenic, and applied to the nasal mucous membrane a spray of four per cent. solution of cocaine, with the effect of completely relieving the symptoms mentioned; and thus far there has been no return.

DR. BEVERLEY ROBINSON called attention to the fact that nasal disease might produce reflex affections of the respiratory and digestive tracts, the genito-urinary apparatus, and the cutaneous surface. On the present occasion, however, he said that he would limit his remarks to hay fever and asthma. It was time, he thought, that the designation hay fever was given up, and that the affection thus called should be given its true name, vasomotor coryza, as proposed by Dr. John N. McKenzie, of Baltimore. It is a curious fact, however, that the old pollen theory has recently been again brought into prominence by the advocacy of no less distinguished an authority than Morrell Mackenzie, of London; thought it is no longer accepted by the great mass of observers. Still, pollen undoubtedly acts as an irritant in certain cases. Dr. Robinson then gave a sketch of the researches of Beard, who tried to prove that hay fever is purely a nervous affection, and of Daly, of Pittsburg, who, five years later, showed its dependence on local conditions in the nasal cavities. Since then, much light has been thrown on the subject by Roe, Sajous, Bosworth, and John N. McKenzie. The nasal trouble present in any case may be either permanent or temporary.

Sometimes cough is dependent on nasal conditions —as, for instance, the presence of a polypus, deviated septum, atrophy, hypertrophy, and chronic rhinitis; but, although asthma sometimes occurs in connection with these conditions, they may, of course, exist without giving rise to asthma. In this connection, he related the case of a well-known physician of a neighboring city, who suffered greatly from the latter affection. A number of polypi were removed from his nose; but the asthma, which was no doubt dependent on an old bronchial catarrh, still remained. We must not forget, also, that asthmatic symptoms may be the result of reflex influence from abnormal conditions of other organs, such as the liver, stomach, uterus, and even, according to some observers, the spleen. In every case of asthma it is necessary to make a thorough investigation of the cause.

In regard to the nasal mucous membrane, Dr. Robinson said that in all probability there are areas of special sensibility at times, but his own observations went to show that these are not constant. The sensibility is probably less circumscribed and more general than has been supposed. Apart from any nasal trouble, there must be a special personal tendency, since there are many cases of nasal disease without any resulting reflex conditions.

Cocaine has been recommended as of special service in making the diagnosis of nasal affections, on account, first, of its anæsthetic properties, and, second, because it diminishes the congestion of the parts. He was convinced, however, that cocaine is not always a successful anæsthetic, especially after it has been used for some time; and that, while its primary effect is to diminish the vascular supply, its subsequent action is to increase this. In the treatment, we must be guided by the condition present, and it is well to remember that nasal hypertrophy does not always exist. Dr. Robinson spoke particularly of the good effects of carbolic acid in the treatment of nasal disease.

DR. GOODWILLIE exhibited several wax casts of nasal obstructions in which he had operated. One was a case of deviated septum, with exostosis and hypertrophy of the mucous membrane; in another, there was complete occlusion of the right nostril; and, in another, in which the patient was a sufferer from hay fever, there was hypertrophy of the inferior turbinated bones, with dilatation of the pharyngeal orifice of the Eustachian tube. In concluding his remarks, he said that the sickness often complained of in these cases of nasal disease is generally produced by the fetid secretions which get into the stomach, causing nausea and interfering with digestion.

DR. SIMON BARUCH thought that this whole subject is entirely too much neglected by the general practitioner; and yet it is one which concerns him almost as much as the specialist, since, in a large number of these cases, there is no very well-defined nasal trouble. Since the publication of Hach's treatise, he has investigated the matter to a considerable extent, having secured a dispensary appointment for the special purpose of obtaining the opportunity of making rhinoscopic examinations, and learning how to treat nasal difficulties. He, therefore, availed himself of this occasion to relate briefly six cases in which various reflex symptoms were overcome by nasal treatment. One was a case of reflex cough, two were cases of headache occurring in young girls, one was a case of asthma, and one was a case of severe pain in the right side of the throat, associated with excessive sneezing. In the latter instance he found enlargement of the lower turbinated bone of the right side, and other nasal troubles, and the treatment adopted was that of the galvanocautery. He has also had a number of unsuccessful cases; but to these he did not refer particularly.

He regretted that in the discussion nothing had been said in regard to the examination and treatment of this

class of cases, as it is highly desirable, he thought, that general practitioners should be able to recognize and treat them before they get so bad that it is necessary to send them to a specialist. One of the most frequent conditions present is hypertrophy of the turbinated bones, and in his own experience he has usually found that this is easy to recognize; while the application of the galvano-cautery, if a good battery is employed, is an easy and efficient method of treatment.

Dr. Henry Schweig said that he must take exception to the last remark of the previous speaker. He believed that there is no procedure which requires more care and judgment on the part of the operator than the use of the galvanocautery; so that, as a rule, only an experienced specialist is capable of properly applying it. While its judicious employment is very efficient, he felt convinced that the abuse of this method of treatment is much more frequent than its intelligent use. In order to accomplish the desired end, we should destroy the cavernous tissue without injuring the secreting surface of the nasal cavity, and the application should always be made from within outward, instead of the reverse. Unless care is used, great and permanent harm may result to the patient; and one very common error is to use too great heat; a dull red heat being all that is required.

The President said he would take this opportunity to make some observations in regard to a point to which attention has never been called, so far as he is aware. For a considerable number of years he has noted the influence of catarrh, hypertrophy, and other changes in the nasopharyngeal cavity upon parts of the nervous system, which had not been alluded to in the present discussion. In a large number of children there are found what are known as peculiar bad habits, such as winking, frowning, drawing up the nose, twitching of the face, and shrugging of the shoulders. He has ascertained, however, that frequently these nervous phenomena are not due to bad habits at all; and thought, therefore, that every so-called bad habit should be investigated, for the purpose of finding out its origin. These cases are not always simple. What is at first a local chorea minor sometimes eventually results in a general chorea minor. Some twelve years since his attention had been called, by a work published in Bremen, to the fact that hemicrania is sometimes dependent on chronic pharyngitis and amygdalitis; and since then he had some hundreds of cases in which this local chorea was associated with conjunctivitis, rhinitis, pharyngitis, enlarged tonsils. In every case of local chorea he had found chronic nasal catarrh and chronic pharyngitis, and he had never found the nasal trouble without the pharyngitis. In many instances it was difficult to determine which of the two had been the original affection.

It is well known, he went on to say, that what is known as the third, or pharyngeal tonsil, in the back of the fauces, is frequently the cause of inter-pharyngeal abscess; but he believed that inflammation and enlargement of this pharyngeal tonsil are also common causes of chronic pharyngitis and chronic rhinitis. They also occasion migraine and hemicrania, and it is evident, therefore, that the whole nasopharyngeal mucous membrane is capable of giving rise to these reflex nervous symptoms. It is a point of practical importance to know that very often the treatment of only one small spot is all that is required.

BALTIMORE GYNECOLOGICAL AND OBSTETRICAL SOCIETY.

Stated Meeting, January 12, 1886.

The President, George W. Miltenberger, M.D., in the Chair.

Dr. L. E. Neale read a paper entitled

TWO CASES OF DYSTOCIA,

of which the following is an abstract.

Case I.—A white primipara, æt. twenty-five years, in labor at term with living child, presenting L. S. I. A., breech movable above superior strait, and unaccompanied by inferior extremities. Descent failing, the attending accoucheur resorted to chloroform, manual extraction, and Elliot's forceps, with an unsuccessful result. Another physician also tried, with the patient under chloroform, (a) manual extraction, (b) to pull down a foot. Dr. Neale was called in consultation and after many trials, including the use of Tarnier's forceps, which slipped, finally succeeded in bringing down a foot and extracting an asphyxiated child which was restored by Schultze's method. Mother well.

Dr. Neale called attention to the use of (1) Barnes's method of decomposition; (2) the obstetric forceps in such cases of difficult, *frank* (Pinard) breech labors. He referred to Tarnier's explanation of the cause of difficulty in engagement and disengagement being due to the legs *splinting* the trunk, and thus preventing flexion of the same; and he thought that this fact might indicate the propriety of Barnes's plan of treatment. He cited several authorities, and agreed with those who considered this method difficult, if not dangerous, when the breech occupied the pelvic cavity, and he was of the opinion that manual extraction directly upon the breech should not be utterly ignored. Most recent authorities sanctioned the use of the forceps in *frank* breech cases, Ollivier declaring that the instrument may be applied to the breech even at the pelvic brim. Lusk particularly recommended the Tarnier forceps; and Dr. Neale thought the instrument should be tried before resorting to more dangerous instrumental measures.

Case II. was one of contracted pelvis occurring in an Irish woman, thirty years of age, in labor at term with third child. Her two former labors were terminated by forceps operation, the child dying on each occasion; and in this, her third labor, with child presenting vertex R. O. I. P., head movable at brim, forceps and version both repeatedly failed, and the child here also died during the accouchement. Dr. Neale was then called in consultation, and with great difficulty succeeded in delivering by craniotomy a ten-pound child. The puerperium was normal. The external pelvic measurements were normal; the internal conjugate was about 2¾ inches; the symphysis pubis was about 2½ inches long, and had an exaggerated inclination, and there was, moreover, a marked thickening of the pelvic bones. The entire build of the woman was short, stout, massive, and powerfully muscular, and there was no sign or history of rachitis. Dr. Neale preferred version, when

practicable, to high forceps in contracted pelves not less than 2¾ inches in smallest diameter, and he cited authority in support of this view. In such cases as labor at term with living child, he would at once resort to version, if practicable; if impracticable, to high forceps, cautiously; and, failing in this, to craniotomy. With dead child, presenting head at the brim, to craniotomy at once. If such cases be seen early enough, labor should be induced by Krause's method (introduction of a bougie into the uterus) about the thirty-second to the thirty-fourth week of gestation; and even then, if necessary, deliver by version.

DR. H. P. C. WILSON said he had nothing to offer in regard to Dr. Neale's paper, except words of commendation, and he was ready to accept the teachings advanced. In his own practice, in cases of presentation of the breech demanding interference, he always brings down a foot. If the breech is engaged in the superior strait, he pushes it up into the uterus and brings a foot down, even if it is at the fundus uteri. He never exerts traction in the groin, either with his finger or the blunt hook, and never uses forceps in such cases. With greater experience, turning grows more and more in his favor.

He referred to the confinement of the wife of a friend in Copenhagen, in which case the head presented. After prolonged effort and failure with forceps, the child was removed by embryotomy. He felt certain, from the account he received, that, had turning been resorted to early, there would have been very fair prospects of saving the life of the child.

DR. B. B. BROWNE had succeeded twice lately in delivering the child with Tarnier's forceps, in difficult breech presentations, where the membranes had been ruptured several hours, the vagina hot and dry, and the breach firmly fixed in the superior strait. In a similar condition, several years ago, he had applied Elliot's forceps, but it slipped and failed to deliver the impacted breech. In all cases where the membranes are unruptured, or where the breech is not firmly wedged in the pelvis, he would prefer bringing down the feet rather than using forceps.

In reply to a question, Dr. Browne said he applied the forceps in these cases to the sides of the pelvis of the mother, and without reference to the portion of the breech upon which the blades would press.

DR. NEALE, in reply to a question, said, that in the first case reported, the blades of the forceps clasped the child over its hips. He thought, however, that the forceps would have a better hold if one blade was over the sacrum and the other over the anterior aspect of the opposite thigh, which is the method recommended by Dr. Lusk.

DR. THOMAS OPIE highly approved of the teachings set forth in Dr. Neale's paper. In practice he always makes due effort to bring down *both* legs in decomposing the impacted breech or in turning the child. The hand grasping both knees or one knee or thigh, has always a more secure hold than by a foot or even both feet, and the traction acts more directly and efficiently on the body.

DR. NEALE, in reply to Dr. Wilson's remark, said that he "always went for a foot" in breech cases requiring interference, and that he believed there were many cases in which it was practically impossible to bring a foot down, as when the breech already occupied the pelvic cavity and could not be pushed up into the uterus so as to free a foot.

CORRESPONDENCE.

ABSORBENT COTTON AS AN ELECTRODE COVERING.

To the Editor of THE MEDICAL NEWS.

SIR: Any new thing presented to the profession in a scientific journal being properly open to adverse criticism, I welcome the exceptions taken by Dr. Faught in the last number of THE NEWS to my communication, on "Electrode Coverings," of December 26, 1885. But a few words will, however, be necessary to indicate his misconception of the meaning of my remarks.

If Dr. Faught had read my original article on this particular subject of minor electrotherapy, published February 7, 1885, to which the later communication was distinctly stated to be "additional," he could hardly have fallen into the error of mistaking the measurement of *wet* cotton and *wet* sponge for a measurement of either the specific or contact resistances of the dry materials. The object of either material, it was explained, is merely the maintenance of a layer of water to act as a conductor between the metal and the tissues. It is obviously absurd to speak of altering the contact resistance of a surface of *water* by pressure. The specific resistance of the compound conductor made up of sponge, or absorbent cotton and water, was the only resistance referred to, and its variability under pressure is readily understood by any one who reflects that heavy pressure makes the layer of water and cotton thin, and consequently a shorter conductor, while light pressure leaves this imperfect conductor longer. The subject is entirely foreign to Sir Wm. Thomson's remarks on the pressure of resistance of solid bodies (in which the resistance *increases* with the pressure).

The experiments were made to illustrate the varied resistances of these compound conductors under similar conditions of thickness and pressure. The actual amount of pressure was not measured, since no two persons press alike on an electrode, but the three degrees were selected as those likely to occur unintentionally during any application of electricity. Lacking these exact determinations of the pressure, any calculations of the ohms found are worthless for comparison, and only confusing to the general reader. The smaller resistance of wet absorbent cotton that is demonstrated by the experiments may or may not be a material advantage with an abundance of cells at command, but the later article points out a more important reason for its use at certain times, namely, the lessened *invariability* of the current under accidental differences of pressure on the electrodes.

Electrode disks can be as evenly covered with absorbent cotton as by cotton-cloth, patent lint, and chamois skin; but even if the disk happens to be covered very irregularly by the former substance, its superior water-absorbing properties will make it a more uniform conductor than the older materials.

Dr. Faught has kindly calculated for me the number of ohms that I must have found in the resistance of the two materials. The results are somewhat clouded by

the assertion that he allows "100 ohms for the metal circuit." That would necessitate the use of twenty-five thousand feet, or nearly five miles of copper wire, in my office, at the well-known rate of two hundred and fifty feet of wire of ordinary size to one ohm. The distance from the keyboard of my battery to the cellar and back is by no means so great.

I am, sir, very truly yours,

G. Betton Massey.

NEWS ITEMS.

The Female Physicians practising in Paris are now eight in number. The first on the list is Mme. Madeleine Brès, who received the title of Doctor in Medicine in 1875. Then Mlle. Clarisse Daniel, Health Officer, in 1876; Mme. Boucher, Doctor in Medicine in 1878; Mlle. Verneuil, specialist in cerebral disorders, Doctor in Medicine in 1879; Mlle. Rosa Perrée, Doctor in Medicine in 1881; Mlle. Benoil and Mme. Berline, Doctors in Medicine in 1883; and, finally, Mme. Inès Sâches-Serrante, in 1884.

Two female medical students, Miss Plunkett and Miss Blanche Edwards, passed the last competitive examination for hospital positions with success.—*Gazette de Gynécologie*, Jan. 1, 1886.

Consumption of Spirits in America.—The great drink cycle in this country has reached its highest point and started back on the descending scale. The Internal Revenue Department indicates that for the year ending June, 1885, this decline was nine millions of dollars less taxes paid than the year before; showing a greatly diminished production of spirits. From the same authority it appears that the number of persons engaged in the liquor traffic, who have paid special taxes to the State or Government, has steadily declined since 1883. These are unmistakable hints of the operations of the laws which govern the rise and fall of the production and use of spirits in this country.—*Quarterly Journal of Inebriety*, Jan. 1, 1886.

The Hungarian Minister of Education has asked M. Pasteur if he will receive a medical man sent by the Hungarian Government for the purpose of receiving instruction in the prophylaxis of hydrophobia. M. Pasteur has readily consented to the request; and Professor Babes, of Buda-Pesth, will probably be accordingly sent to Paris.—*British Med. Journal*, Jan. 16, 1886.

Dr. C. W. Kelly, of Louisville, Ky., has been elected one of the Vice-Presidents of the Section of Anatomy of the Ninth International Medical Congress.

Temperance in America.—At a meeting held on the 12th inst., at Prince's Hall, Piccadilly, the Venerable Archdeacon Farrer, D.D., gave an interesting account of his experience of the temperance legislation which exists in some parts of America. There are no less than five States of the thirty-six which have adopted a stringent measure of absolute prohibition, which has been productive of most beneficial effects. In the State of Maine the prohibitory law has been in force twenty-two years, and there is only one convict to every 1600 of the population; whereas in Massachusetts, where there is no liquor law, there is one convict to every 500 of the population. In Trimble county, Kentucky, which has adopted the liquor law, during the last year there has not been a single criminal case, not a single prisoner in the goal, and not a single pauper in the county. Kansas adopted the prohibitory liquor law in 1881, and during nine months of 1880, when it was under free whiskey rule, there were 264 convicts, while in nine months of 1881, when the prohibitory liquor law was in force, the number of convicts was only 148; and in a town in Illinois, with a population of 2500, there had not been a single arrest in twenty months.—*Lancet*, Jan. 16, 1886.

The Prevention of Myopia in School Children.—It is now tolerably well established that shortsightedness is developed and increased in a certain direct relation to the amount of school-work done by children. For the prevention of myopia, Fuchs, of Liège, in a prize essay, quoted in *The Birmingham Medical Review*, gives the following directions: First in importance are the arrangement and lighting of the schoolroom.

"The principal windows in England should look to the south or southeast. The long axis of the room should run north and south. Every scholar should, from his place, be able to see some portion of the sky. Light from above is the best, and, except in hot climates, glass roofs are very advantageous. The chief light must come from the scholar's left side. The height of the top of the window from the floor should not be less than two-thirds the width of the room. The total window surface should bear to the area of the floor a proportion of at least one to five. In artificial lighting by gas, every burner must have a glass chimney and a shade, the latter arranged to reflect the light down upon the desk, and to screen the scholar's eyes. There should be about one burner to every four scholars."

It is most important that the eyes should not be approximated too closely to the book. The proper position is that in which the shoulders and pelvis are parallel with the edge of the desk, and the head upright or bent but slightly forward. As to the construction of desks and seats, there must be several sizes to suit scholars of various ages; the distance between seat and desk, in the vertical direction, must be but little greater than the distance between the elbow and the ischial tuberosity. The edge of the desk must overhang the seat about two inches; the scholar can then sit upright. The surface of the desk must slope about one in five to obviate the bending forward of the head; and the breadth should not be less than fifteen and a half to sixteen inches. All stooping should be avoided, and the types used must be perfectly legible.—*British Medical Journal*, Jan. 16, 1886.

Paris Faculty.—Dr. Duclaux has been appointed to the new chair of Biological Chemistry in the Faculté des Sciences.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from January 19 to January 25, 1886.

Webster, Warren, *Major and Surgeon*.—Leave of absence further extended nine months on account of sickness.—*S. O.* 15, *A. G. O.*, January 19, 1886.

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ORIGINAL ARTICLES.

THE RESULTS OF THE OPERATION FOR CONVERGENT SQUINT.[1]

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A RECENT English review of a work upon political economy remarks, "To our ideas, a State without statistics is almost as inconceivable as a mercantile or banking establishment without accounts."

I think we shall all agree that it would not be an overestimate of the value of statistics in our science and art, if we applied this statement of the critic to ourselves. In surgery, at least, we can hardly come to any very definite and positive conclusions as to the results of a given operation, unless the statistics of a sufficient number of cases have been carefully considered. And this is also true as to the course of any disease, or the effects of any drug. Impressions, however distinct, are not to be weighed against judicial conclusions formed from the study of a series of cases. Nor does an isolated case, however carefully observed, prove very much. Nowhere better than in medical science is the truth of the homely proverb exemplified, "It takes more than one swallow to make a spring."

It is, I think, owing to the lack of tables showing the results of a large number of cases, that the results of the common operation for convergent squint seem by a few authorities to be still an open question. About twenty-five years ago, Mr. J. W. Hulke[2] said that he was asked by an old ophthalmic surgeon of great reputation, "What do you honestly think of the operation for squint?" and he stated that a strong reaction still lingered against the division of the recti muscles. In order to do something to correct what Mr. Hulke evidently considered a prejudice against a useful and generally successful operation, he analyzed one hundred cases of convergent squint of which he has preserved the notes.

In 1867 Dr. D. Little[3] reported sixty-two cases of convergent squint, operated on by Mr. Thomas Windsor in the Manchester Eye Hospital.

In 1870 Mr. W. Spencer Watson,[4] in an article read before the Medical Society of London, inquires into "the causes of the occasional failure of the operation for squint," and gives an analysis of 99 cases of convergent strabismus. These tables all show a satisfactory percentage of cures. Mr. Hulke believes that the "removal of all disfigurement" was accomplished in 87 per cent. of his cases. Mr. Windsor's statistics show that more than 79 per cent. of his cases were completely successful. This proportion would have been larger had the patients been willing to submit to a second operation. Mr. Watson considers that he had a successful result in 73 per cent. of his cases, a partially successful in 12, and a slight improvement in 4, total 89 per cent. of cure or improvement.

It is now forty-five years since the operation of division of the recti interni muscles was first performed for the cure of convergent squint, and the general literature has been *nil*. There has been, however, very little tabulation of the results as to the removal of the deformity, and the restoration of the vision of the squinting eye. It was at one time quite generally believed that the loss of vision was caused by the deviation of the optic axis, and that vision could be restored if the patient was operated upon at a sufficiently early period. Schweigger's excellent monograph,[1] however, took up the question of improvement of vision after the operation, seriously, and pronounced it a myth, in spite of the isolated cases by excellent authorities that had been here and there reported, for example, by Steffan[2] and Knapp,[3] but even Schweigger does not furnish us with a general table of the results of the operation. The monograph is, however, rich in many details, and boldly opposes Graefe's view that there was such a thing as amblyopia from disuse of the eyes, which an early operation might avert. I believe that Schweigger's work has not yet been translated into English. Were it more generally accessible, I think the profession would soon be convinced of the incorrectness of the theory of an *amblyopia ex anopsia*. Certainly this would be so, did surgeons compile and study their own cases of squint.

From what I have heard of late, among experts in ophthalmology, general practitioners, and the laity, I suspect that the opinions as to the beneficial results of an operation for convergent squint are by no means as unanimous as they are, for example, as to the results of the operation for cataract. I find that it is still taught by some, that the vision of the squinting eye is improved by an operation; by others, that paralysis of accommodation by atropia will often do away with the necessity for an operation (Boucheron, John Green); by still another class, that the operation is performed too commonly, and should often be postponed, or even not performed at all; while Dr. Loring lately told me that he thought if there was anything we did know, it was how to cure convergent squint by an operation.

At the last meeting of the American Ophthalmological Society Dr. Seely (*Transactions*, p. 126) states

[1] Read before the New York State Medical Society, February 2, 1886.

[2] Royal London Ophthalmic Hospital Reports, vol. iv. p. 158.

[3] Ophthalmic Review, vol. iii. p. 148.

[4] The Practitioner, London, vol. vi. p. 17.

[1] Klinische Untersuchungen über das Schielen, Berlin, 1854.

[2] Ophthalmic Review, vol. iii. p. 335.

[3] Zehender's Monatsblätter, 1863, p. 475.

that: "Each year has strengthened the conviction that early operations (up to the twelfth or fifteenth year) are questionable, and should be entirely abandoned." On the other hand, Dr. Theobald, in the discussion upon this paper, states that there are few operations that he has found more satisfactory than tenotomy for convergent squint. So far as the discussion went, although it is fair to say that it was not participated in by many of the members of the Society, the impression is left upon my mind that at least some of these authorities are somewhat at sea on the subject of the results of the operation for convergent squint. Two of the members who participated in the discussion doubted the existence of loss of sight from disuse of the eye—*amblyopia ex anopsia*—a loss which was once generally thought to be recovered by an operation. Dr. Wadsworth, like Schweigger, is convinced that *amblyopia ex anopsia* is a myth.

A paper that gives no uncertain sound as to the value of the operation is that by Dr. Loring[1] published some thirteen years ago. Loring believes that it is true that "strabismus does sometimes disappear of itself, but it is an extremely rare occurrence, so rare, indeed, as to be the exception to prove the rule that it does not cure itself." After alluding to the want of unanimity of opinion among authorities as to the time for operation, Loring goes on to say that he is decidedly of the opinion that the cases in which the operation should be deferred to a comparatively remote period, are few in proportion to those that should be operated upon as soon as seen. Loring, however, furnishes no statistics. They would have been a fitting termination of his suggestive and philosophic paper. Loring says, in this article, that "in certain cases when only one eye is habitually used, the vision deteriorates, so that the eye in a short time becomes useless." The mobility of the squinting eye outward, he also says, is greatly reduced. I think if Loring had tabulated his cases, and carefully investigated the subject of deterioration of vision, he would not have adopted Graefe's views in this respect, but, like Schweigger, would even declare such a deterioration to be mythical, or doubtful at least.

Tables comprising a scant 300 cases, are certainly not enough to determine the results of the operation for strabismus. These are all I have been able to find after a careful search. It is in this lack of statistics, that is, I think, to be found that failure of ophthalmologists to formulate their views on this subject with general unanimity, and to settle the question as to whether vision is, or is not, deteriorated by the continuance of a squint, whether there is, or is not, an *amblyopia ex anopsia*. Certainly it is not from want of material that the statistics of the results of the operation for convergent strabisimus are so meagre. It is one of the operations most frequently performed by oculists. One writer states that he has performed 3000 tenotomies,[2] and yet, so far as I am aware, no statistics as to the results of his operations have appeared in print, while the results of cataract extraction, and of iridectomy for glaucoma, have been presented to us in all the varied tables that skill can suggest, and with the greatest advantage to our exact knowledge, so that discussions as to the general results or the utility of the operation are not even thought of. The important operation to relieve a very distressing deformity, a deformity which alters the whole character of the human face, remains as yet without sufficient data, in this country at least, to enable a body of experts to determine positively whether or not visual power is impaired by such a deviation of the axis of the eye, and such a displacement of the *macula lutea*, as results from squint, and members of this same body appear also to differ materially as to the value or propriety of an early operation. In view of the facts, I have been led to think that a table of the cases of strabismus convergens, in which the notes show the results of the operation of division of the internal rectus, would be of some value at least, and perhaps lead to the publication of others. To me, at any rate, they seem to be enough to prove one point, and for this reason I venture to publish them. Of the etiology of strabismus convergens I do not intend to speak with fulness, but I simply desire to indicate, so far as a hundred and eleven cases will show, what we may expect in the correction of the deformity, and in improvement of the vision of the deviating eye.

With a few exceptions, until the introduction of cocaine as a local anæsthetic, I have used ether for the purpose of procuring general anæsthesia during the operation. Occasionally I have operated without an anæsthetic. In later days I use cocaine in all self-contained subjects, young or old, and ether in children of a nervous or excitable temperament. I make cold water applications for some six hours, by means of pieces of cloth made cold by being laid upon a block of ice. No suture is applied to the conjunctival wound.

In making the table appended to this paper, all cases in which the result is not positively known have been rigorously excluded. Until the last few years, I have been unable to have proper notes taken of my hospital cases, so that I have been obliged to be satisfied with a report of the tenotomies, one hundred and sixty-eight in number performed upon one hundred persons. These, however, have been carefully observed so far as the results are concerned, although I regret that the data in some respects are very meagre. An analysis of the general table which is the conclusion of the paper, shows the following facts, one of them at least is well appreciated already, that is, the proportion of hypermetropia in strabismus convergence is every large—98 per cent. That I have found no emmetropic eyes, as Schweigger does, is to be explained by the fact that I have estimated the refraction while the patients' eyes were under the influence of atropia. When the ciliary muscle was completely paralyzed by atropia, in all my cases of convergent squint except in those that were myopic, I have always found that vision was clearer and in most instances markedly better with a convex glass. That there are eyes not myopic that never accept a convex glass, even when fully under the influence of atropia, I have long since shown[1] and this has been verified by another observer, Randall.[2] That there is an

[1] Transactions New York Academy of Medicine, 1874, p. 161.
[2] Knapp, Transactions American Ophthalmological Society, 1885, p. 37.

[1] Transactions American Ophthalmological Society, 1873.
[2] American Journal of the Medical Sciences, July, 1885, p. 147.

emmetropic eye, although it is an ideal one, I think is clearly shown by these observations, but as compared with hypermetropia or myopia, emmetropia is an exceedingly rare condition.

Even if we consider an eye emmetropic that accepts only a convex sixty after full paralysis of the ciliary muscles with atropia, it will be seen, by reference to the table, that there is very little of this kind of emmetropia in cases of convergent strabismus, the hypermetropia being usually as much as a $\frac{1}{48}$th or more. Yet I think all experts have long since abandoned the belief that convergent strabismus is *chiefly* dependent upon hypermetropia. The short antero-posterior diameter of the eye is but one factor, if it be one at all, in the production of convergent squint. Else excluding the myopic, three-quarters or more of the human race would squint.

In the congenital amblyopia of one eye, which I believe is the general condition of patients with convergent strabismus, and the resultant loss of single vision with two eyes, is perhaps to be found the important fundamental condition for the production of convergent strabismus.

In two cases of myopia with convergent squint, the myopia was so considerable that the far point was at less than seven inches. Both of these cases occurred in females, and in both of them parallelism resulted from the operation. In the case of upward squint, which is still under observation, I propose to bring forward the inferior rectus and again divide the superior rectus. It is the only one of these cases in which the result is as yet entirely unsatisfactory, for in the cases of convergence still remaining, or in the cases of divergence, a simple remedy is still at hand. In the cases of convergence when but one muscle has been divided, I do not consider that the operation has been fairly tried, for I invariably inform my patients that from one to four operations will be required, and I only undertake cases when I am allowed to use my own judgment as to the propriety of a second or even third or fourth operation.

One of the most successful cases that I have ever operated upon, in point of correction of the deformity, and one which is not included in this table, was that of a young man of about thirty years of age, upon whom I performed successive operations, each time making a distinct gain: and I know this is not an entirely unusual experience among those who operate much for squint. The opponents of the operation for convergent strabismus assert that divergence very often results. I have not seen this in my own practice, nor in that of my colleagues and my friends in other institutions than that in which I am a surgeon. I see, however, many successful cases, of years' standing, among the patients who apply for correcting glasses at my clinic. The cases of divergence which I have seen and upon which I have operated have been usually, if not always, cases that came from the hands of travelling oculists without professional standing. The cases of slight divergence that now and then occur in the most experienced hands, may be usually corrected by division of the external rectus without advancement of the internus.

With Loring, and I believe in common with most of the profession in our country, I think the best time for an operation is from five to seven years of age, when occupation with small objects and strain of the accommodation are about to begin. To operate earlier than this, is to lose the great advantage of assistance in correcting the squint that may remain after one or two tenotomies, by the means of convex glasses. As a rule, I advise that glasses be finally left off except for near work, in all cases where the manifest hypermetropia is not great, and when distant vision is not markedly improved by wearing them. Although I have faithfully tried the method of curing squint by the use of atropia and glasses, without operation, I have had no good results, and I have well-nigh abandoned it, although I attach much importance to the use of atropia and glasses after a partial result from a tenotomy.

I can only speak of the practice of allowing children to go from six or seven years of age to the period of puberty, to be jeered at by their thoughtless playmates, without correction of a squint, as being, in my opinion, indefensible and dangerous to the nature and development of the child thus neglected. That some children grow out of squint is, of course, not to be denied, but a few months of observation will determine which those are, and thus prevent an unnecessary operation.

Refraction of the Eyes Operated Upon.

Hypermetropia in both eyes	78
Hypermetropia in one eye and hypermetropic astigmatism in the other	5
Hypermetropic astigmatism in both eyes	11
Hypermetropic astigmatism in one eye and myopic astigmatism in the other	1
Myopia in both eyes	2
Unrecorded	3
Total	100

Vision.

Visual power was found to be the same after the operations, glasses having been fitted under atropia in	17
Visual power was found to be increased, generally is one eye only, with glasses under atropia	31
Unrecorded	52
Total	100

Vision—*continued.*

TABLE SHOWING THE VISUAL POWER FOUND AFTER THE OPERATION AND WITH GLASSES IN THOSE CASES IN WHICH IT WAS INCREASED.

	Before operation.	After operation.
1.	R. $\frac{20}{XXX}$	$\frac{20}{XX}$
2.	L. $\frac{6}{CC}$	$\frac{20}{C}$
3	R. E. Qualitative perception.	R. E. $\frac{20}{CC}$ 4 days after.
4.	$\frac{20}{XI}$	$\frac{20}{XXX}$
5.	$\frac{5}{CC}$	$\frac{20}{CC}$
6.	$\frac{10}{CC}$	$\frac{20}{CC}$

VISION—*continued.*

	Before operation.		After operation.	
7.	18/LXX		20/L+	
8.	16/CC		20/C	
9.	2/CC		20/CC	
10.	20/CC		20/LXX	
11.	20/XXX		20/XX	This was the non-squinting eye.
12.	R. 20/XL	L. 20/L	R. 20/XX	L. 20/XXX
13.	20/CC		15/C	
14.	6/CC		8/CC	
15.	20/XL	Non-squinting eye.	20/XXX	
16.	14/CC		20/CC	
17.	20/C		20/C+	
18.	20/LXX		20/L+	
19.	15/CC		20/CC	
20.	20/CC		20/LXX	
21.	20/C		20/L	
22	20/XL	Non-squinting eye.	20/XX	No improvement in squinting eye.
23.	20/C		20/LXX	
24.	20/LXX		20/L	
25.	20/CC		20/C	
26.	20/LXX		20/XXX	Hyperopic As. corrected.
27.	20/CC		20/LXX	
28.	Fingers at 8″		2/CC	
29.	20/L		20/XL—	
30.	20/CC		20/LXX	Hyperopic As. corrected.
31.	20/C		20/LXX	
32.	20/XL		20/XXX	

A reference to the general table will show that the hypermetropia or hypermetropic astigmatism was almost always of a considerable degree, from a 36th to a 3½, and that there was almost always amblyopia of one eye.

These tables comprise all the cases in which exact notes show that the visual power was increased after the operation. I purposely say *after*, because the improvement of vision that is sometimes seen after a successful operation for strabismus convergens is, I believe, merely a *post hoc* and not a *propter hoc* occurrence. After I have performed an operation for strabismus, if the effect be not sufficient, in common with all surgeons, I suppose, I paralyze the ciliary muscle with atropia, and keep up this effect until it is shown that another operation is needed. It is during this stage that glasses are fitted. Inasmuch as the first examinations take place when the eyes are not under the influence of atropia, only the manifest hypermetropia is shown. In a certain proportion of cases we get a marked or slight improvement of the sight, especially of the squinting eye, with the appropriate glasses, or perhaps without.

But this improvement, which, as will be seen by reference to the table, is generally slight, *is not due to the operation, but to the letting up of the spasm of accommodation.* But in many instances this improvement is so slight, for example, from $\frac{20}{XL}$ to $\frac{20}{XXX}$, from $\frac{162}{CC}$ to $\frac{20}{CC}$, as to lead us to suspect that there may have been an error in the first examination.

In a discussion in the New York County Medical Society, some years since, upon the subject of apparent improvement in vision immediately after the use of strychnia, Dr. O. D. Pomeroy called attention to the fact that many patients have to be trained to see what they actually are able to see. Hence a second examination by test-letters often shows that a patient can read one more line than he did at the first, simply because he had learned how to pass this ordeal of picking out letters.

Schweigger reiterates this well-recognized fact, and warns the practitioner not to be sure that his patient actually sees more, because he reads another line or two on the second trial of the test-letters. Certain it is that this table gives no encouragement to the theory of an *amblyopia ex anopsia*, a loss of sight from disuse of the eye.

As to the cases in which I am not able to state positively what the vision was before and after the operation, I can only say, from pretty distinct recollection, that in no case was there any improvement in vision that could not be explained by the result from adapting proper glasses under atropia. The only case that I have ever personally seen, where any color is given to the theory of amblyopia, or deterioration of vision from disuse of the eye, is that of a squinting and hypermetropic female, in which my records state as follows: "Age seven, February 11, 1880. Periodic convergent squint, R. V. $\frac{20}{XX}$—; L. V. $\frac{20}{XX}$—. February 18, same year, under atropia,

both eyes $\frac{20}{XX}$ —; w. + $\frac{1}{8}$; wears + $\frac{1}{10}$. May 3, 1884. R. V. $\frac{20}{L}$; the same with a convex 10; L. $\frac{20}{X}$; accepts + $\frac{1}{10}$. The right eye is the squinting eye."

The record of the vision in 1880 was made by the late Dr. Edward T. Ely, and, I have no doubt, with his usual care and accuracy. The vision at final examination, when the squint was fully established, was made by Dr. J. B. Emerson. In this one case the lapse of four years does seem to have blunted the vision of a squinting eye. I doubt not, however, that the use of atropia and glasses, without an operation, would have very much increased the vision of this squinting eye.

This patient declined an operation at my hands, and was subsequently operated upon at a public institution, but no records of the result could be found.

That there may be a certain slight amblyopia due in a sense to the squint I do not deny, but this is usually trifling, and only indirectly caused by it, and should be considered apart from the congenital amblyopia, sometimes, and even usually, of a high degree, which, as I have before said, is one of the fundamental conditions of strabismus convergens.

I am very glad to be able to append to my table of 100 cases eleven additional ones, that were operated upon by Dr. F. M. Wilson, of Bridgeport, Connecticut, who, very kindly, gave the notes to me for publication. It will be seen that his results tally with those furnished by the larger number. In a few cases the final record of the patient's vision makes it slightly less than before the operation. As will be seen by referring to the general table, these cases of decrease of vision may be set down to incorrect observations either at the first or final examination.

COSMETIC RESULTS.

Parallelism resulted in	79
Convergence remained in	16
Divergence in	4
Upward squint	1
	100

When convergence remained but one tenotomy has been performed, in	10 cases.
Two tenotomies in four cases	4 "
Three tenotomies in two cases	2 "
	16 "

From these results, as well as from the impressions derived from experience in many more cases, the histories of which are not complete, I conclude that the following propositions are indicated:

1. The operation for convergent strabismus is successful in removing the deformity in from seventy to eighty per cent. of the cases operated upon.

2. When complete control of the patient may be obtained, and as many tenotomies as are necessary are performed, this percentage may be easily raised to more than ninety-five.

3. No essential improvement of the vision of the squinting eye arises as a result of the operation.

4. After parallelism of the optic axes has been secured, glasses may be worn that, in some cases, give an increased vision in the formerly squinting eye.

5. The loss of sight in a squinting eye is probably a congenital amblyopia, the nature of which is not exactly, if at all, known, and which is as yet incurable.

6. No substitute has, as yet, been found for the division of the recti muscles for the cure of squint.

I do not, for an instant, think that this paper, nor these conclusions, are anything more than a small contribution to the study of strabismus. Many points have not been even alluded to, but I think enough has been here shown to stimulate to further study of the subject, and to justify a continuance of our esteem for the illustrious Dieffenbach, who, on the 26th of October, 1839, first divided the internal rectus on the living subject for the cure of squint.

ON THE CONNECTION BETWEEN OBSTRUCTION OF THE LACHRYMAL DUCT AND NASAL CATARRH.

BY HARRISON ALLEN, M.D.,
OF PHILADELPHIA.

WHILE treating a case of chronic nasal catarrh, which chanced to be confined to the right side of the body, I was struck with the fact that the lachrymal passage on the same side became inflamed and the lachrymal sac distended at the same time that the treatment was progressing toward recovery. It was at least a strange coincidence that the obstruction should have occurred on the side corresponding to the chronically inflamed nasal mucous membrane, and the circumstances led me to make inquiry as to the frequency of the occurrence of lachrymal obstruction in chronic nasal disease.

As a result of my interest in the matter, I have come to the conclusion that the two conditions are not infrequently associated. The duct is obstructed in two classes only, namely, in chronic nasal catarrh, in which there are submucous infiltrations and atrophies, and in cases in which the bony walls of the nasal chambers are attacked either by osteitis or necrosis.

Through the courtesy of Dr. William F. Norris and of Dr. Charles A. Oliver, I have lately had an opportunity of examining a number of patients of the dispensary service at the Wills Hospital, and have been surprised to find that in every instance in which the lachrymal duct was obstructed, chronic nasal catarrh was also present. Twenty patients were examined in all. It would be a mistake in judgment to conclude that these figures represent the true numerical relation which exists between the two affections. As is well-known, the reception rooms of our large dispensary services exhibit a greater number of inveterate and unusual diseases than will be found in an equal number of patients in private practice. In my own practice, I have met with but three instances in which the affections were coincident. One of these has been alluded to above. The second was met with in a man, sixty years of age, who had an offensive discharge from the right nostril, and obstruction of the lachrymal duct of the same side. The patient declared that the discharge from the lachrymal sac often had an offensive odor, the odor, indeed, of the nasal discharge itself. It was

never purulent, however, and exhibited the appearances usual in lachrymal disease. In the third case the ducts were obstructed on both sides. The nasal chambers were covered with atrophied mucous membrane, and when first seen were occupied by the characteristic discharge of the advanced stage of the affection.

The lachrymal crests, in all cases examined, were either too prominent or too small. Apart from these trivial characters, no peculiarities of the osseous parts could be detected.

On page 421 of the English translation of Stellwag von Carion's *Treatise on Diseases of the Eye* occurs the following language: "It [blennorrhœa of the lachrymal passages] is frequently developed by a propagation of inflammation from the neighboring parts to the lachrymal passages. Especially important in this regard are inflammations of the nasal mucous membrane, the edges of the lids, and the conjunctiva." The author, in continuation, names the nasal conditions which may induce lachrymal disease, and he places in the first order "severe and long-continued nasal catarrh." Notwithstanding this dictum, the connection appears to have been to a great extent overlooked by later observers, and it is consistent, under the circumstances, to restate the facts.

MEDICAL PROGRESS.

Paludism and Pregnancy.—In a recent study by Bonfils (*Thèse de Paris*, 1885) the following conclusions, based on 140 observations, are presented:

1. Abortion is far from being the rule in women attacked with paludism during pregnancy. Premature delivery, however, is frequent.

2. The accidents induced by paludism are due to congestion of the uterus and its lining membrane, produced in the state of chill.

3. Pregnancy gives no immunity from malaria, and may sometimes awaken that diathesis.

4. Acute paludism renders labor active, but the cachexia appears to have the opposite effect.

5. In the parturient malarial sufferer the pulse is not so slow as is habitual; there is no diminution in temperature, retardation of uterine involution, frequent hemorrhage, and the lochia are not abundant.

6. A return of paludism after parturition is very frequent.

7. The sulphate of quinine has no ecbolic action, and should be administered to the pregnant woman and the nurse when affected with malarial fever.—*Gaz. Méd. de Paris*, Jan. 2, 1886.

Physiological Action of Amyl Nitrite.—In contradiction to the usual statement, that nitrite of amyl effects a lowering of the blood-pressure, Schweinburg maintains that in small doses, as ordinarily exhibited by inhalation, this agent produces a rise of arterial pressure to the point at which there appear flushing of the face, carotid pulsation, and sensations of heat. These observations, which were made on men by means of the sphygmomanometer, are reconciled with the statements of previous observers by a series of experiments on dogs, in which it was shown that large doses, or often repeated small doses of the nitrite produce a diminution of arterial tension.—*Centralb. f. d. med. Wiss.*, Jan. 2, 1886.

Papayotin in Diphtheria.—Kriege has employed papayotin in five per cent. solution as a local solvent in diphtheria and croup, in some fifty-eight cases. After emphasizing the necessity of employing a reliable preparation of the drug, he states that while papayotin is no specific in diphtheria, its application is of great benefit, and absolutely without danger. It was shown to be of especial value in tracheotomy. The so-called infiltrated forms of diphtheria are uninfluenced by the drug.—*Centralb. f. d. med. Wiss.*, Dec. 19, 1885.

Carbolic Acid in Phthisis.—Tilleau records several cases in which the symptoms of pulmonary phthisis have been greatly ameliorated by the use of carbolic acid, especially in hypodermatic injection. Stress is laid upon the necessity of purity in the acid, which should be absolutely white, and should not become discolored by keeping. A one per cent. solution is used, which, it is claimed, never causes the formation of abscesses.—*Journal de Médecine*, Jan. 3, 1886.

Tupelo in Dilatation of the Uterine Cervix.—Ménière regards the tupelo root as preferable to sponge or laminaria for the following reasons:

1. Tupelo acquires its maximum degree of expansion in less than an hour and a half, while sponge and laminaria require from six to seven hours.

2. Its surface remains soft, pliable, and spongy, and in extracting it there is no danger of injury to the mucous membrane.

3. It returns with facility to its former size and shape, and may be used several times if subjected to disinfection in mercuric chloride after each operation.—*Gaz. de Gynécologie*, Jan. 1, 1886.

Internal Use of Carbon Bisulphide.—The *Pharmaceutical Record* for Jan. 15, 1886, quotes the account given in the *Répertoire de Pharmacie*, 1885, p. 541, of the observations of Dr. Sapelier. This observer has shown that *pure* bisulphide of carbon is not at all poisonous when given by itself, but immediately becomes so when given together with alcohol or to persons who use alcoholic beverages, because then sulphuretted hydrogen will be formed. With these precautions he regards it as an invaluable antiseptic remedy in typhoid fever, and all intestinal diseases accompanied by putrid fermentations.

Chemically pure bisulphide of carbon	10 parts.
Distilled water	500 parts.

Mix and keep in a black or amber bottle. Of the *decanted* water give 6 to 20 tablespoonfuls in the 24 hours, either in lemonade or in milk.

Venesection for Hemorrhage.—A correspondent of a Madrid medical journal, writing from Zaragossa, says that in cases of hemorrhage, notably in hæmoptysis and in epistaxis, if astringent remedies fail to arrest the attack, the simplest and best proceeding is to open the saphena or basilic vein. So far from alarming the patient and his friends, he finds that it rather tends to reassure them, for there is an idea very prev-

alent in Spanish towns that "a doctor who does not bleed is not a good one." Many patients, too, with epistaxis will exclaim that they would rather die than allow an instrument to be passed into the nostril, but they will readily consent to allow a vein to be opened, especially when they are assured that this proceeding will almost infallibly cause the flow of blood from the nose to cease. The writer says that this assurance may be given with the utmost confidence, as he has constantly employed venesection for this purpose with very great success.—*Lancet*, Jan. 16, 1886.

Microbiological Study of the Lochia.—Fasola presents, in the *Annali di Ostetrica*, the following results of his microscopic studies of the lochia in four various conditions:

1. Microörganisms are constantly to be found, both in normal and pathological lochia, several hours after delivery, even when carbolized or mercurial injections have been given during the labor. The most usual form is the micrococcus; bacilli are rare.

2. In normal labor, and in the absence of any prophylactic medication, their number is very small; they augment in the first few days, and disappear about the seventh or eighth day.

3. If vaginal injections be given during labor, the growth of microörganisms is retarded. They are found in greatest number when the lochia are altered by puerperal ulcerations or by endometritis, but after intrauterine injection their number diminishes notably.

4. On repeating the carbolized intrauterine injection every day during the puerperal period, the microorganisms remain infrequent, even in fetid lochia. The number is still smaller if solutions of corrosive sublimate are used.—*Arch. de Tocologie*, Dec. 1885.

Effects of Diastatic Ferments on Coagulation of Blood.—Salvioli, of Genoa, has shown that the diastatic ferments have the property of preventing blood coagulation in much the same way that peptone produces this effect. The ferments employed were vegetable diastase, the amylolytic ferment of the liver, and ptyalin. The first two of the ferments named were found to give the most marked results, and when injected into the circulation in the amount of from 0.06 to 0.08 of one per cent. of the weight of the animal, rendered uncoagulable the specimens of blood removed from time to time for an hour and a half after the injection. The best results were obtained with dogs, the method being practically without effect on rabbits and guinea-pigs.—*Centralb. f. d. med. Wiss.*, Dec. 19, 1885.

Soothing Application in Neuralgia.—Mayet has presented, before the Société de Thérapeutique, the following formula for a very neat and compact local application for use in neuralgic affections:

Chloral hydrate	5 parts.
Crystallized menthol	5 "
Cacao butter	10 "
Spermaceti	20 "

These constitutents are mixed into a paste, which is divided into pieces about two-fifths of an inch square, and weighing about thirty grains.

Chloral thus applied in cacao butter has no local irritative effect. The part affected is to be gently rubbed with one of the squares, which is then allowed to melt at the most painful point.—*Journal de Médecine de Paris*, Dec. 27, 1885.

Use of the Œsophageal Sound after the Operation for Harelip in Infants.—The use of an appropriate œsophageal sound, after the operation for harelip in infants, is strongly commended by Bar, as being of direct benefit in two ways.

First, all sucking movements of the lips, with consequent danger to the sutures, are avoided; and, second, the food does not come in contact with the wound. According to Bar, the introduction of the sound is readily effected in infants, and is entirely without danger.—*Centralb. f. d. med. Wiss.*, Jan. 16, 1886.

Artificial Suppression of Menstruation in Chlorosis.—Löwenthal, of Lausanne, reports his observations on twenty-three cases, in which the artificial suppression of the menses proved a valuable therapeutic measure.

The method employed consisted in injections of hot water, of at least 120° F., with close restriction to bed. In very rare cases, ice water was found to be preferable to hot water.

Eighteen of the cases described were chlorotics, and the remaining five included two cases of severe hysteria and three convalescents from exhausting diseases. In the cases last named, a shortening of the period of convalescence was effected. One of the hysteric cases was markedly benefited, and all of the chlorotics were cured with surprising rapidity, and without further medication, after from two to five suppressions. Evil consequences were in no case noticed.—*Wiener med. Presse*, Dec. 13, 1885.

Presence of Peptone in Pathological Organs.—Mitra has set before himself the query whether any non-bacterial influences which cause the destruction of living tissues induce at the same time a production of peptone. In attempting to decide this point, phosphorus, the destructive action of which upon tissue-albumin is well known, was chosen. In rabbits poisoned with this drug, peptone was constantly present in the liver, heart, and kidneys; in the liver to the extent of 0.14 to 0.76 per cent. of the weight of the fresh organ. Similar results were obtained in the case of a dog poisoned with the same drug. Control experiments gave negative results. In six fatal cases of puerperal fever peptone was constantly present in the liver on an average to the extent of 0.59 per cent. of its weight, and was usually present in heart and spleen.—*Centralb. f. d. med. Wiss.*, Jan. 16, 1886.

Hydrocyanic Acid as a Result of the Fermentation of Flaxseed.—Jorissen, in the *Bulletin of the Royal Academy of Belgium*, has shown that a mixture of flaxseed meal and warm water exposed to a temperature of 80° F., will, upon distillation, yield a certain quantity of hydrocyanic acid. This observation has been confirmed by Senior, who has further shown that the result in question is not due, as had been supposed, to the presence of any adulterant in the flaxseed. The application of these observations is evident.—*Les Nouveaux Remèdes*, Jan. 1, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, FEBRUARY 6, 1886.

THE NEW YORK STATE MEDICAL SOCIETY.

THE eightieth annual meeting of this Society was held at Albany this week, and a full account of its proceedings, received by telegraph from our special reporter, appears in this issue of THE NEWS.

The meeting was largely attended, and the papers presented were numerous and of more than usual interest and scientific value. The President, in his Inaugural Address, calls attention to several ways by which it is thought the influence and usefulness of the Society may be extended. His remarks in reference to the organization of the Washington meeting of the International Medical Congress, if only from the fact that they represent the views of such a large and influential body of the profession as that composing the Medical Society of the State of New York, command thoughtful consideration.

Of the scientific proceedings, we can now only call attention to some brief remarks on the subject of gymnastic training, by Prof. Loomis, which will be read with special interest, since nowadays physical training has become a fad, and athletic sports occupy a prominent place in the college curriculum. Dr. Loomis's word of warning, based on a large clinical experience, is timely, and must lead to a more careful and exact consideration of the whole subject from a medical standpoint, than it has yet received in this country. The statement that our young men are overtrained, and that thereby the foundations for cardiac and pulmonary disease are laid, although coming from such high medical authority, will not go unchallenged. The public will anxiously look for the data upon which these views are based, and we hope that Dr. Loomis will lose no time in making a full presentation of them.

THE PROSPECTS OF NATIONAL PUBLIC HEALTH LEGISLATION.

THAT it is very desirable that the present Congress should adopt some measure which will provide for a permanent national sanitary bureau seems to be generally admitted. It is also the opinion of the great majority of physicians and sanitarians, as well as of members of Congress, that it is useless to attempt to rehabilitate the present National Board of Health. It has become evident to most of the friends of the National Board that no satisfactory results can be expected from it under the existing law, owing, mainly, to the fact that it is connected with a department which, if not actively hostile to it, is, at all events, by no means disposed to aid it

Under these circumstances the representatives of the American Public Health Association and of the Association of State Boards of Health seem to have come to the conclusion that the best thing to be done is to give up the idea of a board of health as a part of the machinery of the general government, and to create instead a bureau of health, in the Department of the Interior, which bureau shall have at its head a Commissioner of Health, and the general organization of which shall be analogous to that of the Bureau of Education.

The bill for this purpose provides that the Commissioner of Health is to perform substantially the same duties as those which were assigned to the National Board by the Act which created it, viz., to collect and diffuse information on matters relating to public health, to make investigations into the causes of disease and the best methods of their prevention, and to publish in a weekly bulletin such statistical and other information relating to these subjects as it may be able to obtain.

The Department of State, through its consular officers, is to furnish the bureau with information as to the sanitary condition of foreign ports, and especially as to the occurrence and progress of pestilential disease abroad.

The Commissioner is to be the official adviser of the Government on all questions affecting the public health, but he has no executive duties or powers, and he is to have nothing to do with quarantine work in this country.

The bill seems to be simple and practical, and one of the passage of which there is a fair probability.

There is certainly not the least probability that Congress will give any funds to the present National Board, or that the Executive will entrust it with duties or moneys, nor is it probable that Congress can be induced to pass any law organizing a national board on the principle of State representation.

It seems, therefore, advisable that all who favor the creation of some kind of national sanitary organization should aid the officers of the American

Public Health Association in their efforts to secure the passage of the bill above referred to, even though they may think that the bill does not confer such duties and powers as they would like to see vested in the Department of Public Health of the United States.

Besides the question of a sanitary bureau, Congress has before it the question of the creation of a special Commission to visit South and Central America, and investigate the truth or falsehood of the alleged discoveries of Freire and Carmona with relation to the specific microörganism of yellow fever, and the possibility of protective inoculation against this disease. The proposal to send such a Commission has been presented by Dr. Joseph Holt, the President of the State Board of Health of Louisiana, in behalf of the American Public Health Association, and seems to meet with the approval of the committees of the House and Senate, to which it has been referred for consideration.

While we have serious doubts as to the accuracy and value of the conclusions reported by either Freire or Carmona, and it may be noted that their conclusions are very discordant, we do believe that they are on the right road as to methods of investigating the specific cause of yellow fever, and that the creation of the Commission as proposed by Dr. Holt is an eminently proper and judicious piece of legislation on the part of Congress.

SAVING THE PERINEUM.

MANY of our readers will remember that in antebellum times "saving the Union" was an expression in common use, by some in all sincerity, by others in irony. Saving the perineum, that is, saving it from rupture, is becoming quite as common an expression in medicine as saving the Union was in political affairs during the few years that preceded our civil strife.

Methods of saving the perineum from being torn in childbirth are presented annually, semi-annually, almost quarterly, until they threaten to be as numerous as uterine specula. If a new method cannot be devised by the ingenuity of an obstetrician, an old one may be revived, and proclaimed upon the basis of infallible statistics to be the right one. Possibly it may suggest itself to some minds that the very multiplicity of means proposed to prevent perineal tears, is proof that no one is always efficient, and that in some cases the perineum will be ruptured no matter what method is used. The truth is, several factors enter into the production of these lesions, as, for example, the form of the perineum, the condition of its tissues, the size of the child, the presentation and the position, the character of the expulsive force, the conduct of the patient, etc.

We have been led to make these reflections from an article by DR. MEKERTTSCHIANTZ, in a recent number of the *Archiv für Gynäkologie*, upon tearing of the perineum and protective means. The method he advocates for preventing such tears is that of relaxation of the perineum. While he acknowledges the general plan an old one, having been recommended by Flamant, Weigand, Busch, Velpeau, and others, yet he claims that no one has hitherto made a positive method of it—that it has not been used systematically.

While directing that the method must be suitably modified according to the presentation, he gives the following description of it as applied to ordinary vertex presentations. The patient lies on her back, the lower limbs are flexed, but the knees must not be so widely separated that the perineum is at all stretched. When the presenting part presses the perineum forward, the obstetrician sitting on the woman's right side, grasps with the thumb of the right hand the right side, and with the fingers the left side of the perineum, trying to relax each side. As soon as the head enters the vulval orifice and the frænulum is stretched, the left hand is carried over the woman's right thigh, and placed with the ulnar margin on the mons veneris, so that the thumb over the right labium and the middle finger over the left labium, grasp the frænulum from each side, and, as the thumb and finger approximate each other, it is relaxed. The presenting head, now in the vulval cleft, is, by means of the vola of the left hand, subjected to light interrupted pressure, and emerges between the fingers placed at the sides. After the birth of the head, the left hand disengages, if necessary, the navel cord, and is then used for completion of the delivery of the child, while the right is relaxing the perineum during the expulsion of the shoulders.

The results of this method in the author's hands are remarkable, for out of fifty primiparæ, in only two was there a trifling rent of the mucous membrane observed. The method is undoubtedly a good one, but it promises too much, for one is always sceptical in regard to an infallible remedy. Moreover, the position in which Mekerttschiantz places the parturient, on her back, is one in which the perineum is more liable to tear than if she lie on her side.

MITRAL STENOSIS.

IN the January number of *The American Journal of the Medical Sciences* there are, among several important papers on heart affections, two upon mitral valve disease and its symptoms, which are worthy of special consideration.

DR. AUSTIN FLINT discusses the mitral cardiac murmurs and their significance, while DR. BROADBENT, of London, deals exhaustively with the subject of mitral stenosis, to some of the general features of which we propose, on this occasion, to refer.

Among the peculiarities in the clinical history of this common affection which still lack a suitable explanation, is the frequency of it among women. The estimates of various authors given by Dr. Broadbent, range from 66.6 per cent. to 78.75 per cent. Girls are more subject to rheumatism than boys, and the greater liability of girls to anæmia at the period of puberty may be a factor in inducing the valve disease. The greater prevalence of chorea in girls, and the well-known predilection of the endocarditis, in this disease, for the mitral valves, are, we think, important causes of the greater frequency of mitral affections in women. The endocarditis resulting in sclerotic changes is an insidious process to which the acute warty form is related only as an excitant. The valvulitis in rheumatism, chorea, and scarlet fever is usually harmless, as such; the little beady excrescences soon disappear, but irrevocable damage results from the tendency, which so often remains, to slow proliferative changes, by which the valve tissues are gradually sclerosed and the segments deformed. Dr. Flint remarks on the frequency with which the lesion is met with in persons who have never had rheumatism.

Another unsettled question relates to the existence of this lesion in children. Dr. Broadbent has had more cases of advanced mitral stenosis in children than any other serious form of heart disease. The experience of individual observers is by no means unanimous on this point. Hayden, Fagge, Sansom, and Loomis, speak in much the same terms as Broadbent, but Duckworth's statistics do not support this view, nor do our own more limited observations. Of twenty-three cases examined after death, the youngest was seventeen. Excluding congenital cases, we should say that mitral constriction is rare before puberty, much more so than a curling of the edge of the curtains with the production of marked incompetency, without much, if any, narrowing of the orifice.

The pulse of mitral stenosis is usually described as small, feeble, and irregular, but in Broadbent's experience it is almost invariably regular until failure of the heart occurs, when the irregularity may become indescribable and it is impossible to time sounds or murmurs. Cases, however, go to a fatal termination with little or no disturbance of rhythm. There is a modified high-tension—*i. e.*, the artery is small, but is full between the beats and can be rolled under the finger. Mitral stenosis is usually regarded as the lesion most likely to be associated with general cardiac dropsy, but Broadbent holds that in uncomplicated cases this symptom may be absent until very late in the disease or may never appear. He has met with an extreme degree of anasarca only when the tricuspid orifice has been narrowed. The records of Guy's and of St. Mary's Hospitals certainly bear out this statement.

While all authors are agreed that aortic incompetency is the most serious of heart affections, there is still a difference of opinion as to the next in gravity. Broadbent unhesitatingly gives the place to mitral stenosis, and yet his figures show the average age at death to be for males, 33, and 37 or 38 for females. This is a high average for an affection which, as many authors state, is especially met with in the young. The special danger is believed to be connected with the greater difficulty in the establishment of full compensation. But is this so? Do we not frequently meet with well-marked cases of mitral stenosis going about and enjoying life undisturbed by the consciousness of heart weakness? As Broadbent says, they often have not, up to an advanced stage, the look of heart disease, being neither pallid nor anxious looking, nor livid and dusky. Up to the very moment of the onset of serious symptoms the patient may be unconscious of cardiac embarrassment, and may do ordinary work, "even when this necessitates going up and down stairs." This means very perfect compensation, which certainly, in our experience, may be developed *pari passu* with the narrowing of the orifice, and be maintained for years. Dr. Flint refers to the long tolerance of this form, and speaks of cases which have been under his observation for from ten to fifteen years. As he well remarks, such facts must be taken into account with reference to the prognosis, and we still are inclined to follow Peacock and some of the older writers, and put mitral incompetency next in order of gravity to aortic regurgitation.

To the interesting questions in diagnosis contained in these papers we shall return on another occasion.

IODOL.

The recent discovery of a substance to which has been arbitrarily given the name of iodol, and its application as an antiseptic to wounds, have been mentioned in The News. Desirous of knowing whether iodol had unequivocal germicidal power, and, having that power, how great it was, we applied to Dr. Sternberg to test these points. He very kindly has made this investigation, and we are sorry to say that the results are negative. He states that a saturated aqueous solution was added to an equal quantity of gelatine solution, and put in a warm place; at the end of twenty-four hours the mixture was swarming with the bacteria of putrefaction. The experiment was repeated with urine, and the result was similar. He then added a considerable quantity of the powder to fresh urine, in a test-tube, and after shaking the mixture well allowed the powder to subside, and then added a drop of broken-down urine. At the end of twenty-four hours the urine in the test-tube had undergone puterfactive decomposition, and was swarming with microörganisms. In addition to the insolubility of iodol as thus shown, Dr. Sternberg suggests that

as a powder in direct contact with a granulating surface, iodol might have a certain antiseptic value, or possibly in the presence of a discharge from a suppurating wound it would be slowly decomposed, and iodine set free, but this can only be determined by clinical experiment.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Eightieth Annual Meeting, held in the City Hall, Albany, February 2, 3, and 4, 1886.

(By Telegraph from our Special Reporter.)

TUESDAY, FEBRUARY 2.—FIRST DAY.

MORNING SESSION.

THE Society was called to order at 10 o'clock by THE PRESIDENT, DR. ALBERT VANDER VEER, of Albany, who, after prayer by the Rev. Walter D. Nicholas, delivered

THE INAUGURAL ADDRESS.

He congratulated the Society on its excellent financial condition. He suggested that the By-laws be changed, under the authority given by a recent Act of Legislature, so that the number of delegates and permanent members from the county societies be increased at least fourfold. He recommended that in every alternate year the annual meeting be held in some other part of the State than Albany, believing that this would create local interests which would eventually lead to mutual good.

In reference to the International Medical Congress, he said: In the time that has elapsed since we last gathered here, the medical profession of this country has been called upon to pass through, it is to be hoped, its greatest period of humiliation. We that were present remember well the pleasure that was afforded when Dr. J. S. Billings, at Copenhagen, in the name of the profession of the United States, extended the invitation to the International Medical Congress to meet in 1887 in America, and rejoiced to see that invitation so cordially accepted. Alas, how soon were our hopes and delights dashed away from us, when the American Medical Association at the meeting in New Orleans saw fit to undo all the good work that the original committee of seven had accomplished, and under the plea of geographical distribution enlarged its committee to forty-five members, doing it so cunningly as to drop the names of all who had ever been independent and fearless enough to express in an honest and manly way their convictions on the subject of all codes.

The result of that action is well known to us all. The great solicitude for the success of the Congress manifested by those who manipulated that movement has produced its effects, as was expected by the better judgment of men whom they would not heed.

Many resignations have resulted, until at last it becomes a grave question as to whether the Congress will meet here at all in 1887, and if so, the success of the meeting appears doubtful. I well remember having conversations with many of the foreign members in regard to the meeting of 1887, and it was well understood by them that all questions relating to codes and medical politics were to be left out, and only on such condition would they accept. As one has so well remarked, "The way is long and the fear of the sea is strong," and there must be unity and peace and great attractions to bring them from the mother country.

Among the names so dropped are those of many of the very men about whom foreign physicians are the first to inquire, and with whom they are best acquainted, not only through their writings but by personal contact. In speaking of this uncalled for action on the part of the American Medical Association most of the foreign journals have condemned it, but the remark of one, especially, is so true that I make the quotation: "The American medical profession is not so rich that it can afford to play all Europe with only pawns on its side of the board." Whether, as has been suggested, it is possible for the American Medical Association to accept the advice given by the best men of Philadelphia, and retrace its steps, is a matter of grave doubt. Time is passing rapidly, and what is to be done must be done quickly.

How different the action at New Orleans from the sentiment of that great scholar, Prof. Virchow, as embodied in his last address before the Congress of German Surgeons. While dwelling upon the subject, he states tersely that no body of scientific men who are honest and true need anything on the subject of medical ethics to guide them. No codes—for no man has ever yet been made by such restrictions to act the part of a gentleman who would not naturally have done so without them.

It is a source of gratification to us as a Society to witness the good results now being obtained by our position of a few years since, regarding the proper understanding of the Code of Ethics. The Society which then so hastily and promptly refused our delegates admission to its meeting at St. Louis, has since had its conscience disturbed, and at its last convention in New Orleans gave an interpretation of certain portions of its Code, which is surely in the right direction, differing but little in reality from our own view of the question. I have no love for quarrels and would say, let the American Medical Association alone in its view of Codes, but when it attempts, as it has, first to refuse us recognition in a Congress in which we have as much right to be represented as they, and then, at last, when the pressure of professional opinion becomes too great, offers us membership but no official standing, it is time we protest. An editorial in THE PHILADELPHIA MEDICAL NEWS of January 30th, entitled "The Congress Controversy and the Code," is so fair and candid in its statements as to the situation, that I would earnestly refer its perusal to every honest-hearted member of the profession in this country.

THE PRESIDENT then announced the serious illness of the VICE-PRESIDENT of the Society, DR. ALFRED C. POST, of New York.

DR. VANDER POEL offered the following resolution, which was unanimously adopted:

Resolved, That this Society learns with regret of the illness of its Vice-President, Dr. Alfred C. Post, and tenders to him its earnest sympathy and sincere hope of his recovery.

THE BUSINESS COMMITTEE offered the following:

Resolved, That a committee of three be appointed by the President to consider the recommendations contained in the Inaugural Address, and report at this meeting. Adopted; and Drs. F. R. Sturgis, of New York, W. S. Ely, of Rochester, and H. R. Hopkins, of Buffalo, were announced as the committee.

The Provisional Business Committee, consisting of Drs. W. W. Potter, of Buffalo, Daniel Lewis, of New York, and A. M. Phelps, of Chateaugay, was appointed as a Permanent Business Committee.

THE COMMITTEE ON LEGISLATION

reported that a bill to establish a Board of Medical Examiners had been prepared and is now pending in the Senate and Assembly.

The following bill has been introduced and passed:

"That the Medical Society of the State of New York should have full power to elect such number of permanent, delegate or other, members as may be provided for by the Constitution or By-laws of the State Medical Society, said Medical Society of the State of New York being hereby empowered to regulate and control its own membership."

The following bill was also passed:

"That medical societies may hold real or personal property to an amount not exceeding one hundred thousand dollars, and that no member of any said society shall be assessed a greater sum than five dollars in any one year."

DR. C. L. STILES, of Oswego, reported the

HISTORY OF A CASE OF ABSCESS DISCHARGING THROUGH THE BLADDER.

F——, aged fifty-seven, married, plumber by occupation, ex-cavalryman, claimed to have received an injury in the region of the spleen by slipping from his horse during parade. At the time of accident he had pain at point of injury, and the part was tender for some time. Dr. Stiles saw him August 9, 1881, and treated him for splenitis, from which, after a time, he recovered.

In May, 1882, the feet and legs became swollen, the condition of the left limb being most marked. Urine contained albumen. He recovered after several weeks' treatment.

May 5, 1885, he was again seen, complaining of pain and tenderness in the region of the spleen, 2½ inches below and 1½ inches to left of umbilicus. Here there was an area of considerable hardness, 2½ inches in diameter and ¾ inch in thickness. This spot was not very sensitive, but it was the seat of considerable dull pain. This enlargement was noticed three months previously. On May 28th, he was almost free from pain, but the enlargement remained the same. He then returned to work. There was no evidence of fluctuation.

On October 29th, he was seized with violent attacks of colic. November 4th there were similar attacks, both relieved by a hypnotic. November 23d he was again seen, at which time the enlargement was unchanged.

On December 2d he suffered considerable pain. On the 3d the enlargement measured six by seven inches and three inches in thickness. No fluctuation could be detected. There was no rise in temperature. On the 7th, fluctuation was detected, and it was resolved to aspirate the next morning. On the 8th the enlargement had disappeared. The patient stated that the tumor was present at 4 o'clock the previous afternoon, but at 6.30 P.M., the same day, he found that it was absent. It had disappeared without his knowledge, although he was awake. There had been no inconvenience or pain produced. At 8.30 P.M. the patient passed a large quantity of dark colored urine. Later he passed a still larger quantity. Examination of the vessels containing the fluid passed showed that there was at least a quart of pus. Microscopic examination revealed the presence of abundant cholesterine crystals. For the next two days more or less pus was passed. The patient experienced no pain or inconvenience where the enlargement had been. From this time he rapidly improved, and on January 28th was at work and had been working for two weeks.

DR. J. LEONARD CORNING then read a paper on

THE CURATIVE POTENCY OF PROLONGED SLEEP.

The progress in therapeutics has undoubtedly been great of late years, but in spite of the advancement in the classification and knowledge of remedies our greatest victories are won through the coöperation of nature herself. The *vis medicatrix naturæ* remains still the factor of greatest potency in treatment; if we desire to combat disease successfully, we must lay hold upon some great law or laws of physiology and appropriate the hidden forces thus placed at our disposal to the ends of scientific therapy. One of the most brilliant, if not the most striking exemplification of the truth of the above proposition is found in the practical application of *rest* to curative ends. Unfortunately, however, there has been great confusion in the conceptions of rest heretofore prevalent. If we are asked in what manner does the brain obtain rest, we reply: through the instrumentality of the conditions collectively designated as *sleep*. Therefore, any system of cerebral rest which can lay claim to physiological consistency, must have for its corner-stone sleep. And furthermore, inasmuch as the amount of sleep is in direct proportion to the vital expenditure of the organ, we should see to it that the greater the exhaustion of the brain the greater the amount of sleep we prescribe for our patient. *Prolonged sleep may, therefore, be set down as the cardinal principle of physiological brain rest.* It must, however, be combined with systematic and scientific overfeeding, in order that repair of the exhausted brain may proceed in a physiological manner during the interval of unconscious repose.

The essential features of a scheme of brain rest then, are: (1) progressively prolonged sleep; (2) increased general and cerebral nutrition; (3) diminution of psychical irritation; (4) elimination of sensory impressions, particularly those of light and sound.

In carrying out this scheme of treatment, Dr. Corning is in the habit of secluding the subject in a darkened room, eventually for from ten to fifteen hours at a time, according to the amount of sleep which it is desired shall be had during the twenty-four hours. The amount of sleep is *progressively* increased by habit, moderate medication, and hydrotherapy; but he never resorts to forced sleep by the reckless abuse of sedatives. When the patient awakes, as is sometimes the case, two or three times during the hours set apart for rest, nourish-

ment is administered, but always in an easily digested form. The few hours of wakefulness are devoted to some form of amusement, but all forms of mental exertion are strictly prohibited.

DR. B. F. SHERMAN then reported

A CASE OF EMPYEMA,

which illustrated the result of using the aspirating apparatus and the valvular drainage tube devised by Dr. A. M. Phelps. The aspirator differs from those in ordinary use by having a third tube through which the bottle may be cleaned and the pleural cavity washed out. The aspirating needle is modified by being provided with a shield to prevent irritation of the tissues.

The patient was seen June 15th; aged nineteen, farmer, parents living and healthy. In the previous September had measles, and while convalescent, on Oct. 11th, had a severe chill followed by fever with severe pain in the right side. The pain and fever continued and the right side became swollen. On December 3d, a small opening in the sixth interspace, right side, formed, through which a large amount of pus escaped. This gave temporary relief.

When the patient came under his observation, there were profuse night sweats, great emaciation, and extreme weakness, the patient fainting during the examination. Pulse 130, respiration 40, temperature in axilla 103°. The right side of the chest was enlarged, the intercostal spaces bulging. The whole right side was flat on percussion to within one inch of the clavicle. The left side was resonant throughout. There was no sound on auscultation over the right side until the clavicle was reached. On the left side there were exaggerated respiratory murmurs.

Jan. 17th, at 10 A. M., three grains of quinine and one ounce of whiskey were given, and the aspirating needle introduced between the ninth and tenth ribs, two inches to the right of the spine, and thirty-two ounces of pus were drawn off. The pleural cavity was then washed with carbolized water, 1:80, at a temperature of 100° F. The operation was well borne. On the 18th there was only a slight discharge from the opening in front and none from that in the back. On the 21st, sixteen ounces of pus were removed. A valvular drainage tube was introduced into the posterior opening, and the anterior opening was enlarged and a rubber tube fitted with a plug was introduced. A few days later the chest was again washed out and forty ounces of pus, by actual measurement, removed. This treatment was continued until July 20th, when the tubes were removed and the openings sealed with lint saturated with compound tincture of benzoin. July 25th, the patient was discharged cured, and in August he returned to work in the harvest field.

A year later, the lung was in perfect condition, there being no deformity of the chest.

DR. WM. S. ELY, of Rochester, then read a paper on

PULMONARY GYMNASTICS.

Although it is well understood that a relation exists between chronic pulmonary disease and defective chest development, it is not the rule to recommend any special treatment for overcoming this condition. Sometimes the pulmonary capacity is deficient from lack of development, at other times it may be diminished by compression of the lung from pleuritic effusion. The object is to discover some plan of treatment which shall in the one case symmetrically increase the chest circumference, and in the other expand the compressed lung. He had been led to believe that at any age lung expansion, when deficient, could often be relatively increased by the persistent use of pulmonary gymnastics.

In ordinary respiration only a small part of the pulmonary capacity is called into play. While in quiet breathing the tidal air is stated as about twenty cubic inches, when extreme breathing is tested the complemental air is said to be equal to one hundred and ten cubic inches. The author had for years noted the undeveloped action of "extraordinary auxiliary muscles" as a result of disuse.

The process for increasing chest expansion was described as follows: The head is fixed, and the extended arms carried upward until the backs of the hands touch at the highest point over the head. The arms are next dropped to the side, and the chest-wall is subjected to a series of direct, light, percussive efforts. To be of value, these efforts must be continued for months. One hundred of these full inspirations should be taken daily. When the efforts produce coughing, pain, dizziness, or headache, they should be temporarily omitted.

The movements described have been supplemented by subjecting the distended chest to pressure by voluntary contraction of the muscles of the abdomen and chest, while the air is prevented from escaping. Like all important remedies, this may operate injuriously. Pulmonary gymnastics can be safely prescribed only by physicians possessed of correct anatomical and physiological knowledge, and competent to diagnosticate and prescribe for different forms of thoracic disease.

DR. A. M. PHELPS, of Chateaugay, had, in 1878, operated in a case of empyema and used the valvular drainage tube. This afforded not only thorough drainage, but also enabled the cavity to be completely washed out. The idea was to cause obliteration of the abscess cavity. On the one side is the rigid chest-wall, on the other, the lung capable of collapse and expansion. The tube was intended to permit the escape of air from the pleural cavity while it prevented its entrance during inspiration. He had operated on six cases, using this tube. Three had recovered. Two were cases of multilocular abscess, and one was a case of amyloid degeneration of the lung and resulted fatally.

DR. A. L. LOOMIS, of New York, considered that the length of time the lung could be compressed and yet be restored to its normal condition, depends largely on the location of the inflammatory process. If limited to the costal pleura, a long time may elapse, while if there are extensive changes in the pulmonary pleura, the lung will expand only slowly, imperfectly, and never completely.

The case described was unquestionably one of acute suppurative inflammation. In such cases the cavity may be rapidly filled with pus; this may occur in the course of twenty-four hours. In these cases the inflammation affects chiefly the costal pleura. There is, of course, more or less secondary suppurative inflammation of the pulmonary pleura. There is, however, very little interstitial change in the pleura, at least for some

time. He is satisfied if the effusion is absorbed within a month or two, and if this takes place within a week or two perfect expansion of the lung may be expected, so that, as in the case reported, it might be difficult, a year afterward, to state which side had been affected.

There can be no question that in suppurative pleurisy the pus should be removed as soon as formed. Aspiration is simply temporizing; so far as his experience goes, aspiration is worse than useless. The only proper way is to make a free opening, and, if desired, a counter-opening. If the operation is performed early, a single opening is sufficient. A drainage tube should then be introduced. If the pus has no offensive odor, he does not believe in washing out the cavity. He saw no necessity for the valvular drainage tube. The lung will expand, if it is not bound down, as soon as the fluid is removed. This is shown in cases of injury to the ribs permitting air to enter the pleural cavity. The lung will not collapse unless it is injured. In pure suppurative inflammation it is not necessary to wash out the cavity. The changes will go on rapidly and from two to six weeks will be the limit of the case if the opening is made early. This is the great point in these cases.

In regard to Dr. Ely's paper, he had paid considerable attention to the subject of pulmonary gymnastics in his own person, and had found that, unless he was in excellent physical condition, such exercise is harmful, enfeebling respiration and increasing the danger from exposure. The question of pulmonary gymnastics in pleuritic adhesions and pulmonary disease is another matter. He thought that, although much had been written on this subject, nothing satisfactory has been attained, unless it is to be found in Dr. Williams's pneumatic cabinet.

With reference to rowing and college gymnastics, he considered that the severe training and prolonged muscular effort of such sports were laying the foundation for many cases of cardiac and pulmonary disease. As a rule, college men are overtrained for boat races and other athletic sports, and he had seen phthisis develop in a large proportion of those who had been active participants in these exercises.

DR. D. B. ST. JOHN ROOSA, of New York, said that while there are cases that do not require washing out of the pleural cavity, still there are others that do require it. There are cases in which the pus is mixed with flakes that will not pass through the canula or through an opening in the chest, a resection of the ribs being required in many such instances. When there are such flakes, the pleural cavity must be washed out, no matter what the condition of the pus. In cases where the amount of pus was large, and the lung partly adherent, the discharge of pus had rapidly diminished under this treatment. The operation should be done antiseptically, a rubber drainage tube introduced, and the wound dressed with antiseptic precautions. The next dressing should not be made for three or four days. The following dressing may not be required for a week. Under such treatment the wound heals very kindly, even where resection has been done.

In reference to Dr. Ely's paper, he said that there is a class of cases in which pulmonary gymnastics are of service. These are cases in which there is premature ossification of the cartilages, especially of the upper part. This condition can be benefited by pulmonary gymnastics. In such cases there will be expansion, especially downward.

DR. FRAZIER thought that in many cases in which pulmonary gymnastics are resorted to, the lungs have reached the fullest development of which they were capable. The overstraining of lungs which are already sufficient for the needs of the system is harmful.

DR. SHERMAN said that in his case each washing out was followed by lowering of the pulse and temperature. After the second washing, the amount of pus discharged was merely nominal.

DR. F. A. CASTLE, of New York, described a simple method of pulmonary gymnastics which was suggested for the use of a boy requiring such exercise. This consisted in placing the pockets of the jacket under the arms, so that in order to get the hands into the pocket it was necessary to expand the chest. Again, in the male adult, a large proportion of the respiration is carried on by the abdominal muscles. For this reason it is desirable to avoid, as much as possible, overdistention of the stomach.

DR. ELY said that in the cases in which the measures described were employed he had seen no serious results, but he insisted that all such exercise should be under the control of a physician.

DR. HERMAN BENDELL, of Albany, read a paper on

THE TREATMENT OF AURAL POLYPI BY THE INJECTION OF CARBOLIC ACID.

The favorite method of treatment of aural polypi has been by the wire loop and the subsequent application of caustics. One objection to this treatment is the hemorrhage which may ensue. The treatment he recommended was the injection of from two to five drops of a fifty to seventy-five per cent. solution of pure carbolic acid. This coagulates the blood in the part, and causes a slough. In some cases one application is sufficient, in others the application has to be repeated. The slough should be removed before the injection is repeated. This plan of treatment is easily applied, and is not followed by excessive reaction.

DR. ROOSA then read a paper on

THE RESULTS OF THE OPERATION FOR CONVERGENT SQUINT.

(See page 141.)

He stated that the tables would appear in full in the Society's volume of *Transactions*.

DR. HARVEY JEWETT, of Canandaigua, reported a case of

SPONTANEOUS EXPULSION OF A LARGE STONE FROM THE FEMALE BLADDER.

The accretion, before it causes serious inconvenience to the patient, becomes too large to be expelled through the natural channels, and cutting or crushing is the only alternative except in a few instances in females, where the dilatation of the urethra can be effected without doing violence to the parts.

Mrs. U., aged sixty-eight years, suffered for six years with incontinence of urine. In one of the intense paroxysms of pain she expelled a calculus measuring 3¼ by 2⅞ inches in circumference, and weighing 186 grains. The use of the sound revealed another stone, which I removed with a strong pair of polypus forceps by dilating the urethra with my finger. This

stone measured 4 by 4¼ inches in circumference, and weighed 395$\frac{1}{16}$ grains, or about 6½ drachms. This was accomplished without either laceration of the parts or hemorrhage. The bladder was carefully washed out with an aqueous solution of carbolic acid. Small gravel, with mucus, continued to discharge for six days; she was then put upon use of the Buffalo Lithia Water from the Virginia Springs. The concretions gradually diminished, and in about ten days entirely ceased, and at this date (five months after the removal of the stone) the patient is about the house, and in a comfortable condition of health.

Afternoon Session.

Dr. Hermann Bendell's paper on the

treatment of aural polypi by the injection of carbolic acid,

was then announced as being open for discussion.

Dr. T. R. Pooley, of New York, had had no experience with the remedy mentioned. The chief objection raised to the snare was the occurrence of hemorrhage. He had never seen any trouble from hemorrhage. If there is bleeding, it can be readily controlled. Two objections arise to the use of carbolic acid in the tympanic cavity. First, the possibility of the occurrence of pyæmia and septicæmia, a result of absorption by the mouths of the vessels of the bone. Second, the application may give rise to inflammation, and the periosteum may be converted into connective tissue, thus interfering with the function of the organ.

Dr. B. F. Sherman described a method which he had used with success in one case. The meatus was filled with polypi. They were dusted with tannic acid, and the operation was repeated every day or every other day; in ten days the polypi had sloughed and were removed by injection of water.

Dr. W. F. Mittendorf, of New York, claimed to have originated the carbolic acid treatment, having used it in 1881. This method he had limited to cases of large polypi present at the external meatus, and in which the patient had refused treatment with the snare. He has never seen serious results, but the application is painful and for the last few years he has resorted to the snare only.

Dr. Pomeroy said that the injection of polypi is painful and unnecessary. His method is to remove the polypi with forceps, and then touch the base with nitrate of silver fused on a probe. The canal is then filled with boracic acid. Most of the cases so treated have recovered without trouble.

Dr. George R. Fowler, of Brooklyn, read an elaborate paper on

non-union of fractures; together with a consideration of some modern methods of treatment,

at the conclusion of which he presented the following summary of his views on treatment.

1. In all cases of simple delayed union, the percussion method of Thomas, combined with an efficient retention apparatus, will be found to offer the readiest and most efficient means of bringing about union, provided this does not depend upon some dyscrasia. In cases of fibrous union, benefit may also be expected from this plan, provided absorption and attenuation of the ends of the fragments, or eburnation, have not taken place.

2. Brainard's method of drilling the fragments, and this failing, freshening the ends of the bones and uniting the periosteum by either the method of Jurdain or Rydygier, combined or otherwise, according to the exigencies of the case, with wire suture of the ends of the fragments, should take the place of the old Dieffenbach operation. This should be done with a modified antiseptic procedure, and is applicable in cases in which the percussion method of Thomas has failed because of delay in instituting early treatment, and in pseudarthrosis.

3. Cases in which it is found impossible, because of excessive loss of bone substance, to unite the periosteum by sutures or to wire together the ends of the bones, should be treated by bone transplantation, under antiseptic precautions, either by the method of MacEwen, or that of von Nussbaum.

The following gentlemen were then introduced as

delegates from the canada medical association:

Drs. T. J. Allen, Wm. Gardner, and James Stewart, all of Montreal.

the committee on prize essay

reported that only one paper had been presented. It was on drug eruptions. While a creditable production, the Committee considered that it did not represent sufficient original research to merit the prize.

Dr. Porter, from the

committee on by laws,

offered the following, which was adopted:

Resolved, That the following be added to Article I., Section 5, of the By-laws:

"All persons now eligible, and who have not been nominated as permanent members, shall inform the Secretary of this Society of their desire in this regard."

Dr. A. Hadden, of New York, then read a paper on

rheumatic affections of the joints.

He claimed that rheumatoid osteo-arthritis, often called rheumatic gout, is a disease distinct from either rheumatism or gout, and that the pathological changes are in the osseous structure of the joints. He held that the disease attacks persons who live chiefly on amylaceous and saccharine foods; and he stated that a similar disease, called "bone spavin," attacks the horse and other graminivorous beasts, while in all carnivorous animals and in birds no such disease is known. In the treatment of this disease, therefore, he recommended the substitution of nitrogenous for amylaceous and saccharine foods, and by this method he has obtained, clinically, the best results.

Dr. T. R. Pooley, of New York, reported

a case of tumor of the maxillary antrum and orbit,

the history of which will be published in full in an early number of The Medical News.

Dr. E. F. Brush, of Mount Vernon, in a paper on

infant feeding,

pointed out some simple methods of feeding an infant when it has been deprived of the breast. He urged the

claims of simple foods in preference to the so-called "patent foods," the composition of which is often unknown; he examined the constitution of the once famous "Liebig's Food for Infants," and of another popular food, and indicated the dangerous amount of alkali contained in them, citing Dr. Jacobi's warning that "we are not very careful in doses of alkali in general," and Dr. Stillé's remarks that alkaline treatment "lessens the amount of fibrin in the blood." He showed by the figures furnished by one of the advocates of peptonized food that the results of such feeding are not satisfactory.

Proceeding then to the immediate subject of his paper, he stated that one of the greatest elements of failure in the artificial feeding of infants is the desire to give *one* sort of food alone under all circumstances, and hence the prescription of patent foods. He advised, on the contrary, the preparation of foods from simple articles within reach to meet the requirements of each case as they arise. When there is failure with food thus prepared, the physician has at least a knowledge of the cause of failure.

Commencing this with the child at birth, Dr. Brush gave his formula for the best substitute for colostrum, and his further treatment if the cathartic effect is either excessive or defective. He then discussed the question, What is the best staple food? He answered unhesitatingly "cow's milk," which, however, is subject to many conditions that render it unfit, unless due care is exercised. In 1879 Dr. Brush had pointed out the difference between the milk of the ruminant and non-ruminant animals, as regards, particularly, the quantity and quality of the casein contained in them, and the difficulty experienced by the infant in digesting a milk intended for the calf. When an infant vomits a hard curd, the indications are that the milk must either be prevented from coagulating in the stomach, or coagulated and broken up before entering the stomach. He showed that it is unadvisable to use alkalies to overcome the tendency to souring in the stomach, and therefore preferred the latter treatment of coagulating and breaking up the milk before feeding it. In other cases, he recommended the addition of lime-water as the safest agent, as it does not, like other alkalies, keep the stomach in an alkaline condition, nor cause an acid condition of the intestines. In case of diarrhœa in children fed on milk, the indications are to stop the milk immediately. The milk is the cause of the trouble, and the milk is rendered unfit by the physical condition of the cow, such as œstrum, pregnancy, poisonous herbs, cruel treatment, and the like, to all of which sources many cases of diarrhœa in infants can be traced. In these cases of diarrhœa he recommended oatmeal-water, which his analysis convinced him is somewhat similar in composition to milk. He insisted on the necessity of the medical attendant himself preparing and teaching the preparation of these simple foods. In all cases, however, the child should be put back on its ordinary milk diet as soon as possible.

As regards the kind of cow best adapted to supply milk, Dr. Brush prefers the common red cow to the Jersey or fancy breeds. The latter are of a tubercular tendency, the fat in the milk is not sufficiently emulsified, and they are of higher nervous temperament, while the common cow, ordinarily, is gentle and a good feeder. She should always be stallfed, as in hay even the poisonous weeds lose their evil properties by volatilization of the poisonous principle. When milk is bought, that of one cow should always be avoided, as its composition is never uniform.

In cases of constipation, raw malt-water, carefully prepared, as a dilutant of the milk, is efficacious. In acute dysentery raw beef solution is to be recommended. In all cases of dysentery the food of the infant should be warm.

DR. A. JACOBI, of New York, referred to the fact that the difficulty with cow's milk is that it coagulates in hard curd. One method of overcoming this difficulty is that which he had adopted years ago. This consists in taking half a drachm of dilute muriatic acid, adding it to a pint of water, then adding this to a quart of raw milk, and boiling the mixture. This will keep a long time; and when it coagulates, it does so in small curds. This is well relished by healthy children, and also by children with gastric trouble. It is also of service in adults.

DR. JACOBI then read a paper on

PAPAIN OR PAPAYOTIN.

After referring to the chemistry of this substance, which is obtained by adding alcohol to the juice of the papaw plant, the physiological action was described. Its therapeutic effects were next considered. It has been found innocuous when taken internally; but when injected subcutaneously, it is followed by dangerous symptoms of paralysis of the heart and nervous system. Its effect has been compared to that of pepsin and pancreatin, with this exception, that it is effective in smaller doses. It is useful in alimentation.

Diphtheritic membranes are dissolved by it in a few hours. Several cases of diphtheritic deposit were described as showing the effects of this drug, one part to four of water and four of glycerine. In these cases the membrane was softened and dissolved, and disappeared within forty-eight hours. He exhibited specimens of egg, meat, and cheese digested by a solution of papayotin of the strength of 1 to 250.

DR. A. L. LOOMIS, of New York, then read a paper on

GENERAL ARTERIO-CAPILLARY FIBROSIS; ITS RELATION TO CARDIAC AND RENAL DISEASE,

which will appear in full at an early date in THE MEDICAL NEWS.

DR. H. R. HOPKINS, of Buffalo, has been working with the sphygmograph for a number of years. He has found high arterial tension in a number of cases as a functional disturbance. He has also seen high arterial tension precede for years the occurrence of albuminuria. In three instances he has seen high arterial tension in apparently healthy individuals followed in from six to eighteen months by Bright's disease. High arterial tension is readily diagnosticated by the methods of examining the pulse in vogue one hundred years ago.

DR. H. R. HOPKINS then presented a paper on

ULCERATIVE ENDOCARDITIS,

in which he referred to the labors of Osler and Rosenstein. The seat of this affection is, in the majority of cases, on the left side of the heart. It occurs at the seat

of impact of the valves. The disease may be primary or intercurrent. The primary cases are rare. The intercurrent affection occurs more particularly after scarlet fever, pneumonia, and pyæmia. When the disease results from pyæmia, particularly puerperal pyæmia, the location is likely to be on the right side of the heart, and the emboli are found in the lungs.

There is great difficulty in the recognition of the disease. It may be divided into certain types. A large number of cases are diagnosticated as typhoid fever. The pyrexia, however, differs from that of typhoid fever. Rigors are more common, and sweats are more profuse. A second type is the pyæmic. Here there are rigors, profuse sweating, vomiting, jaundice, and sweet breath.

The symptoms referable to the heart are often absent. The symptoms referable to the brain are hemiplegia, aphasia, unconsciousness, strabismus, delirium, and convulsive movements. Symptoms affecting the skin are profuse sweating, occasionally jaundice, and usually an eruption petechial in character. The urine is frequently albuminous. The disease is generally attributed to the presence of a microbe which is found in the diseased spots and in the emboli. Illustrative cases coming under the author's observation were then narrated.

Dr. Loomis stated that he had met with ulcerative endocarditis under three conditions: First, in rheumatic endocarditis of an exudative character, in debilitated and especially alcoholic subjects; second, in old valvular lesions; third, in acute cases of infectious endocarditis.

In regard to diagnosis, when a physician has seen one or two cases and is on his guard, the diagnosis is made without much difficulty. If the heart be watched, although there may be no murmur, there will be a peculiar action which he had never seen in any other condition. It seems as though the heart were stimulated to beat wildly. He had noticed this before the appearance of the murmur. After the murmur and the emboli appear, there is no difficulty.

Dr. Willis E. Ford, of Utica, then read a paper on

THE EARLY MANAGEMENT OF CASES OF MENTAL DEPRESSION.

He thought that in the majority of cases a period of depression precedes the development of insanity and that many cases of grave insanity might be prevented by proper treatment. The cases may be divided into two classes: those in which there is intellectual perversion, and those in which the emotions are alone disturbed and there is no fixed delusion. In cases where the physician cannot secure the confidence of the patient, where there is a suicidal tendency requiring constant watching, and where careful attention cannot be had at home, the patient had better be removed to an asylum. Cases of mental depression, where the emotions are alone affected, where there are no delusions, are improved by diversion and by travel, and appropriate medical treatment. In some cases of sudden onset of melancholia, treatment by sedatives has been effective.

Dr. J. M. Bigelow, of Albany, then presented some

HINTS ON THE TREATMENT OF DIPHTHERIA.

He advocated the use of tincture of chloride of iron in fifteen drop doses with glycerine and water, muriate of pilocarpin in one-twentieth of a grain doses every two hours, and twenty minutes later two or three tablespoonfuls of whiskey—the mouth to be cleansed with a two per cent. solution of carbolic acid, and a spray of lactic acid to be also employed. This treatment has been followed by satisfactory results in his practice.

Evening Session.

Mr. Lawson Tait, of Birmingham, forwarded a paper on

METHODS OF DIAGNOSIS,

which was then read. He maintained that the speculum and the sound, as means of diagnosis, have been productive of uniformly more harm than good. That a blennorrhagic discharge from the vagina of any patient requires the introduction of a speculum, is one of the stock beliefs of the great bulk of general practitioners, but it is certain that nothing of the kind is requisite and a very large amount of mischief, there can be no doubt, has been produced by this belief. It is not at all an unusual thing for him, on taking part in a consultation with the family physician concerning some such case, to be told by him that he very much regretted that he had not made an examination with the speculum. Others have told him that they made the said examination, and when asked what they saw, or what they did, the answers usually given are that they did nothing, they merely made the examination; that is to say, they passed the instrument and with that proceeding were perfectly satisfied, evidently under the belief that the passage of the speculum was quite as much a curative agent as a method of diagnosis. Similarly with the sound, he had heard many practitioners tell of their experience with the sound, or rather their want of it, and he judged that they looked upon it as a sort of magical charm, the introduction of which into the uterus was to achieve unmeasured good. As a matter of fact, the sound is one of the most dangerous instruments which ever was invented for the treatment of human suffering, and in his own practice obtains hardly any employment at all.

There is a story which is told against himself by some of his colleagues which he never hesitates to repeat, because it is the kind of accident which is liable to occur to any one, and fortunately the only one of its kind which ever happened to him. It conveyed a lesson of which at the time he stood much in need, and from which warning may be taken with advantage. Many years ago he was asked by the surgeon of a large general hospital to give his opinion on the case of a young woman, who had been in the hospital for some months suffering from a pelvic tumor which seemed to threaten her life. She was hectic, suffering, and very ill. The tumor on one side of the pelvis was apparently quite fixed, and he expressed the opinion that it was a collection of matter, but in what position he could not say unless she would allow him to make use of the uterine sound. His surgical friend told him he could do exactly what he thought proper. He had asked for his opinion as a specialist and he would not interfere with any steps he thought fit to take for the purpose of furnishing him with that opinion. Mr. Tait immediately proceeded to use the sound and came, quite erroneously, to the conclusion that the patient was suffering from a parametric abscess. The sound passed, as he thought, into an empty uterus, fixed toward the right side, the uterus

being of normal length. Within twenty-four hours the patient miscarried of a fourth-month fœtus, and this ended all her sufferings. She speedily recovered and left the hospital cured in a way which nobody expected, and which certainly he did not intend. All such accidents have by no means so happy an ending as this had, and their number is immense. But few months pass without his hearing of a case in which some kind of mischief has been done in this way.

One of the most important methods of diagnosis in abdominal disease, and the first to be considered in examining any case, is inspection. A careful examination, by the eye, of the contour of an abdomen when the patient is lying on her back, with the walls of the abdomen perfectly flaccid, will reveal a good deal to the experienced practitioner. A completely and uniformly distended abdomen may mean that the patient is suffering from peritonitis, intestinal obstruction, ascitic effusion, a parovarian tumor, an ovarian tumor, a large myoma of the uterus, or pregnancy. The process of discriminating between these various conditions may very rapidly be completed by one who is accustomed to deal with them. Thus peritonitis may be at once detected or eliminated by the presence or absence of the short and rapid pectoral breathing, which shows that the patient is loath to use her diaphragm. In fact, by this alone, and without almost any further inquiry, he has satisfied himself as to the nature of the case by a single glance. Ascitic effusion, on the other hand, is revealed at once by the absence of the pectoral breathing, by the greater flattening of the distention, by its tendency to assume a pyriform shape, the broadest diameter just above the pelvis, by the thickening of the walls due to anasarcous effusion, and the presence of white lines in the skin of the flanks. If the crest of the ilium sticks out under stretched skin, the diagnosis is again almost complete without further inquiry. If, on the other hand, these subsidiary features are absent, and there be a uniform and complete distention, two conditions widely distinct may be suspected. These are parovarian cyst and hydramnios; and here, again, some very curious mistakes have come under his notice, some of which have had very ghastly results. Parovarian cysts after labor sometimes grow with astonishing rapidity. Hydramnios always occurs with twin pregnancies, and generally in unmarried women, who are, of course, disposed to conceal their condition, and mere inspection cannot be depended upon to discriminate these cases.

But inspection will help us very largely to detect pregnancy and myoma, for in these cases the distention is always greatest either at the middle of the tumor or at its upper part, differing in this way completely from ascitic distention; and here one of the most important agents in the diagnosis of abdominal diseases, palpation, comes at once to our assistance, and to the skilled fingers it ought not to take more than a few seconds to discriminate between any or all of these conditions. The percussion note, which is uniform in a case of peritonitis, will easily determine the condition which is present. One or two delicate touches of the fingers of one hand whilst the fingers of the other lie with the most gentle lightness on the other side of the abdomen, will determine the presence of fluid, and it is in this method of palpation that the skill of the practitioner at once becomes visible. The inexperienced hands press firmly upon the walls and may be seen to move to and fro in an aimless fashion as though they were rocking a cradle. The gentlest and tenderest touch alone will reveal what is required. Measurements of the different diameters of the abdomen will teach in a few seconds the leading features which are present: first, that there is fluid; secondly, that it is, or is not, near the surface, being contained, or not, within a thin-walled cyst; thirdly, that there is one cavity, or not; fourthly, the probable character which it presents. The wave excited by gentle tapping is retarded or urged on by the more or less gelatinous nature of the fluid. All these conclusions are indicated with the utmost rapidity to the skilled fingers, and it is absolutely impossible to teach how this can be, save by the constant practice of the pupil. The parovarian cyst may be diagnosticated entirely from one condition, that is, hydramnios, partly by its thin walls and partly by the fact to which he has alluded, that hydramnios is very easily detected. Ascitic fluid is revealed in the same way, and by the additional fact that here and there we get tympanitic percussion notes.

The large uterine myoma is defined by its firm sense of resistance and its uniform feel and pseudo-fluctuation, also by the fact that it has a smaller diameter at the base than at the middle or upper part. Pregnancy, the rock ahead to inexperienced practitioners, can be infallibly revealed by palpation. First of all, there is fluctuation due to the liquor amnii, and it can be easily detected, and this declares the cystic nature of the mass. If the hand be made to lie gently on the parietes for a few minutes a rhythmical contraction of the uterus, by which at one time it is hard as a cricket ball and at another soft as a cushion, will become perfectly apparent, and this is as infinitely more certain sign than the sound of the fœtal heart or placental bruit. The fœtal heart is a sound which may guide and sustain the practitioner in his conclusions, but it is so easily imitated by intestinal noises, and often so difficult to find, that it is not to be depended upon with certainty. The placental souffle is probably more easily recognized than the fœtal sounds, but placental sounds are very often, in rapidly growing tumors of the uterus, so completely imitated that there is always a certain amount of doubt connected with them. But the relaxation and contraction of the uterus in pregnancy are points in diagnosis which, when once made apparent, can never be mistaken for anything else.

Dr. W. Gill Wylie then read a paper on

THE DISEASES OF THE FALLOPIAN TUBES,

which will appear in full in an early issue of The Medical News.

Dr. Mundé, of New York, said that, as a rule, he agreed with the author of the paper. Mr. Tait had demonstrated that in his hands exploratory incision and laparotomy are comparatively safe procedures, but to inculcate the idea in the minds of general practitioners that the operation is unattended with danger is going too far. The operation of abdominal section will always be a dangerous one. So long as it remains a capital operation, it should not be lightly performed for the purpose of diagnosis when we have the power to make the diagnosis without it.

Mr. Tait had stated that bimanual palpation can be made with the patient on her back as well as when she is on her side. When the patient lies on her side all the movable organs will fall to the side, and the results obtained will not be correct. He did not approve of that method of making bimanual palpation.

In pyosalpinx there are two methods of operating. In movable pyosalpinx he thought laparotomy should be performed. When the dilated tube, filled with pus, is adherent to Douglas's pouch the diagnosis should be made by aspiration through the vagina. The tube should then be opened and a drainage tube introduced. In hydrosalpinx, he thought that no severe operation should be resorted to.

In those cases of muscular hypertrophy of the tube due to stenosis or atresia, the result of catarrh of its lining membrane, it is sometimes difficult to decide whether to operate or not. In some cases the patients complain greatly, are practically bedridden, and require operation. In other cases the pain is experienced only at the menstrual period, and these cases do not always require operation.

THE PRESIDENT, DR. VANDER VEER, believed that Mr. Tait's success was to be attributed to his experience, as he devoted his whole time to the subject of abdominal surgery. He did not think that the profession in this country, or in England, fully appreciate what is understood by the Tait operation. Mr. Tait holds that if any portion of the ovary or tube is diseased, the whole of the uterine appendages should be removed. He had seen cases illustrating the truth of this principle. He did not think that the position with the patient on the back is a good one for bimanual examination. With reference to the case described by Dr. Wylie, in which peritonitis ensued, Mr. Tait lays great stress upon such cases, and would probably operate, even if the patient seemed almost moribund. He insists on the thorough washing out of the abdominal cavity. This is one of his strong points.

DR. HAILES, of Albany, asked opinion in regard to the following case: A young woman, twenty-eight years of age, had died as the result of an injury to the leg, and an autopsy was made. An interesting condition was found: the uterus had been pregnant, the left ovary was in a state of cystic degeneration, and the size of a lemon. The right ovary was also diseased, and presented a thin-walled transparent tumor. During the examination the cyst ruptured. The question suggested was, what would be the effect of such rupture during operation.

DR. WYLIE said that three of the cases described were distinct cases of pelvic abscess. Some of them might have been opened from the vagina, but he felt it his duty to perform laparotomy, for there was an abscess above, which could not have been opened from the vagina. Dr. Hailes's case seems to have been one of cystic degeneration frequently met with in hysteria and hystero-epilepsy. These cysts rupture without producing serious results. He had ruptured them intentionally without harm resulting.

DR. P. R. FURBECK, of Gloversville, read a paper entitled *The Establishment of a State Board of Medical Examiners*. It was referred to the Committee on Legislation.

DR. J. A. S. GRANT-BEY, of Paris, France, communicated a paper

ON CHOLERA.

He held that when cholera appears in Egypt, it is the result of the germ having been imported, and that it is a specific disease characterized by violent vomiting and purging, with rice-water stools, cramps, prostration, collapse, suppression of urine, albuminuria, etc., tending to run a rapidly fatal course. It is essentially different from sporadic cholera, the difference being characterized by the presence of a germ (comma bacillus) in the former and its absence in the latter. Asiatic cholera is transmissible because this germ is a living organism, and transmissible in a live state. Much may be done to prevent its spread. Every epidemic rages amid filth. Personal cleanliness and house cleanliness are of vital importance. Nuisances of every description should be abated. Rooms, cellars, and water-closets should be whitewashed; the crowding of sleeping apartments should be avoided; thorough ventilation must be allowed. Food or drink injurious at ordinary times is doubly injurious in cholera season. Impure water is the most convenient vehicle for the cholera germ. To be quite safe, it should be boiled and carefully cooled before being drunk. Partially ripe fruit should be cooked before being eaten, and ripe fruit eaten raw should be washed before it is taken into the mouth. Temperance in eating, drinking, and exercise should be recommended. Thorough disinfection of the apartment in which a choleraic case exists, of the person of the patient, of the matter vomited and that discharged from the bowels, of all materials that have come in contact with these matters, and of the persons and clothing of the attendants, is of vital importance.

The best disinfectant is plenty of pure air. The germ of cholera becomes entirely inert in the open air, and this is the reason why it always travels along the routes of communication whatever the direction of the wind may be. Heat is a valuable disinfectant. Hence, if our food is well cooked and our drink well boiled, the danger of getting cholera through these is removed; and it is well to understand that the evidence in favor of the communicability of cholera by means of water and food contaminated with the cholera germ is now overwhelming. In addition to pure air and heat, sulphurous acid fumes, chlorine gas, and permanganate of potassa may be mentioned as valuable disinfectants.

At the commencement of an epidemic, cholera manifests itself without a premonitory symptom, and death takes place in a very few hours; but ordinarily there is a premonitory diarrhœa, the stools being copious and watery, followed by great prostration of strength.

If judiciously treated, many persons recover from this, *the first stage* of cholera; but, if neglected, the disease grows rapidly worse; the stools, becoming more frequent, have the appearance of rice-water; vomiting now commences, and prostration is complete. There are intense thirst and severe cramps in the limbs, and the voice becomes husky and the pulse imperceptible. The duration of this, *the second stage* is very uncertain, but the weaker the pulse becomes the nearer the patient is to *the third stage*, or that of collapse, from which few recover. Those who recover, however, often succumb afterward to some of the complications set up

by the primary disease, such as suppression of urine, inflammation of stomach and bowels, etc.

In the first stage of epidemic cholera we endeavor to stop the purging, and here opium is our sheet-anchor. The best way of exhibiting it in cholera is the preparation known by the name "Tincture Chloroformi cum Opio (Kirby)" (R. Tinct. opii, ℥ss; spt. camphoræ, ℥ss; tinct. capsici, ℥ss; chloroformi, ℥iss; spt. vini rect. ad. ℥iiss. M.), of which twenty drops for an adult and five drops for a child should be given in half a wineglassful of water or chamomile tea every hour or two till diarrhœa ceases, and no nourishment given except beef-tea or chicken soup and rice. If the diarrhœa is not checked and vomiting commences, the "Anticholerique selon Pasteur" (R. Hydrarg. bichlror., gr. ij; spt. chloroformi, ℥x; spt. camphoræ, ℥x; tinct. lavand. co., ℥ss; spt. vini rect., ad. ℥ij. M.) should be used and the other medicine omitted. This "Antichlorique" contains the ingredients for killing the germ of the disease and for stopping the diarrhœa, vomiting, and cramps, while it stimulates the heart and favors a general reaction. It is very hot and biting, and has, therefore, to be mixed with a sufficient quantity of water or chamomile tea to make it palatable. The dose is a teaspoonful for an adult and a half a teaspoonful for a child or young person, in a wineglassful of water, every quarter of an hour, every half hour, every hour, and so on according to the urgency of the symptoms.

Mustard poultices may now be applied over the abdomen, and mustard with a little olive oil should be rubbed up and down over the cramped muscles. Thirst should be assuaged by means of ice, which is very agreeable to the patient, while giving water to drink *ad libitum* would only hasten death. The ice should not be stinted, but the patient allowed to eat as much as he chooses; he will frequently devour a pound or two of ice in the course of an hour. In the treatment of cholera, there can be no question about the value of ice. The patient should be prohibited from drinking water, except that from the melting of the ice or that in which he takes his medicine. Warm chamomile tea, however, may be given in small quantities, from time to time, to soothe the stomach and allay vomiting.

In the stage of collapse heat and friction may be applied with advantage to the surface of the body, and the patient given some chamomile tea, or even iced water, to drink. Wine and stimulants at this stage do harm instead of good; therefore, they must on no account be given.

When reaction comes on, guard against doing too much. Iced milk or arrowroot or weak beef-tea may be administered by the rectum every six hours, in case of great prostration. Many nostrums have been put forward for the cure of cholera, and in 1865 they were all faithfully tried and found wanting.

In conclusion, Dr. Grant's opinions about cholera may be briefly stated thus: Cholera is caused by a living organism the habitat of which is the Delta of the Ganges, just as the habitat of the hippopotamus is the upper Nile. All attempts on the part of this organism to form new habitats have failed; at least so far as Egypt, Europe, and America are concerned. Were a hippopotamus met with in the Hudson River, it would at once be concluded that it had come from its well-known habitat or had escaped from a menagerie that had originally got it from the Nile. As our great scientists, Tyndall and Huxley, have renounced the idea of spontaneous generation, the same reasoning that is applicable to the hippopotamus is equally applicable to the lowest living organism whether animal or vegetable. The cholera germ, being a living organism, is transmissible in a live state. In Dr. Grant's opinion, this organism has different stages of development, and it is not capable of inducing a choleraic attack except at a certain stage of its existence. Hence recent choleraic stools are not contagious, but stale ones are highly so. Epidemic cholera differs from sporadic cholera in many respects:

1st. The difference implied in the names.

2d. In sporadic cholera we have generally a history of indigestion occurring in a spell of warm weather.

In epidemic cholera, on the other hand, we have no such clew to the malady; but on tracing it, find that it has come from a port or frontier town that has been in communication with an infected district, and on further inquiry it will be found that every epidemic of this disease, outside India, has been preceded by a recrudescence of it in India.

3d. Sporadic cholera is more a summer disease, appearing when fruit is ripe, while season has little or no influence upon epidemic cholera.

4th. Sporadic cholera, although often attended by partial suppression of the urine, is not accompanied by albuminuria,

5th. Sporadic cholera is not followed by a typhoid state, as is epidemic cholera,

6th. In sporadic cholera there is not the comma-bacillus of Koch. Whether this organism is the cause or effect of epidemic cholera, it is at least diagnostic of it, and if we can prevent its development we shall extinguish the disease which its presence indicates. If we were to prevent the thunderstorm the milk would not sour, but let the thunderstorm work its worst, and ply our knowledge to prevent the development of the bacterium lactis, and when we have achieved that, we shall be able to preserve our milk from souring, even in unfavorable electrical conditions, if the bacterium is the immediate cause of the souring.

7th. In sporadic cholera followed by death the mucous membrane of the bowel shows that inflammatory action has commenced at the stomach and extended thence down into the bowel.

In dry cholera, on the other hand, followed by death, the mucous membrane of the lower part of ileum for about two feet above the ileo-cæcal valve is found particularly congested, almost pink in color, while the rest of the mucous membrane may be perfectly normal in appearance.

8th. Sporadic cholera is not in any sense a contagious disease, and is not, therefore, imported into the locality where it exist, but takes its origin on the spot from the causes alluded to above.

Epidemic cholera, on the other hand, is always brought to a non-infected locality by cholera patients, or by articles that have been soiled with the dejections of cholera patients.

9th. Epidemic cholera is very fatal, while sporadic cholera is not.

Dr. Grant's explanation of the cause of death in epidemic cholera is somewhat as follows:

Immediately above the ileo-cæcal valve there is a

decided slowing of the downward movement of the contents of the small intestine, and a partial check at the valve itself, by ascent of fecal matter from the cæcum to the ascending colon. This affords time for the development and multiplication of the cholera bacillus, the spores of which had been swallowed and had retained their vitality, while the swallowed bacilli themselves had perished in the acid juice of the stomach. Be this as it may, it has been demonstrated that at the ileocæcal valve, and for some little distance above it, is found the chief seat of the cholera bacillus.

At this particular part of the bowel absorption is more active than at any other part, proving that here must be a larger supply of the delicate nerve network that exists in the wall of the intestine. The facility afforded at this part for the absorption of ingredients that had been left unabsorbed by the upper part of the bowel, no doubt also favors the penetration of the cholera bacillus. A mechanical irritation, therefore, of the fine layers of nerve network, is set up by this organism, the result being collapse and death, such as we have in fatal strangulated hernia. The secretion of a special poison, or the production of a ptomaine by this bacillus, is not, in his opinion, necessary to account for death.

The ganglionic system of nerves is simply disturbed through the local irritation caused by the active presence of this organism. The control over nutrition is lost, the doors are thrown wide open for exosmosis, and thus endosmosis is prevented. All the organs immediately under the control of the sympathetic system are nearly paralyzed in their action, or very much disturbed. The blood, from loss of serum, becomes thick and unfit for circulation, and the heart refuses to act, and, therefore, ceases to beat.

Wednesday, February 3.—Second Day.

Morning Session.

The Society was called to order at 10 A.M.

The Committee on By-laws reported against the approval of the by-law of the New York County Society providing for

EXPULSION FOR NON-PAYMENT OF DUES.

A motion to lay on the table having been made and lost, the report was accepted.

Dr. Derby, on behalf of the committee to consider the question of the existence of

CONTAGIOUS EYE TROUBLE IN CHILDREN'S ASYLUMS

of New York and its vicinity, reported that careful examination showed that thirty-two per cent. suffered from such troubles, and presented a bill providing that every incorporated institution for the care of children shall have attached to it a regular physician, who shall carefully examine all children applying for admission, and give a certificate stating whether the applicant is suffering from any infectious or contagious disease, especially of the skin or eyes. Any such child shall not be allowed to enter the institution, but shall be confined in an infirmary. It is also made the duty of the physician in attendance to give notice in writing, to the proper authorities, whenever any dormitory shall be overcrowded, so that there shall be less than six hundred cubic feet to each individual.

The State Society indorsed the bill, for the purpose of aiding its introduction into the Legislature.

THE REPORT OF THE TREASURER

showed a balance of $467.00.

Dr. A. R. Simmons, of Utica, presented a paper on

ACUTE NEPHRITIS, ESPECIALLY AS FOLLOWING DIPHTHERIA.

In diphtheria, he said, nephritis results from the products of the disease within the first eight days. Irritant remedies are to be avoided; mercury must be used with care. The indications for the treatment are to relieve congestion of the Malpighian tufts, to reduce the thickened mucous membrane, and to carry off the epithelial débris. Two general plans of treatment may be pursued. One to increase the excretory action of the kidneys; the other to act on the other excretory organs, viz., bowels and skin. A combination of these methods is the best plan. Irritant diuretics and nitrogenous food should be avoided. He concluded his paper with a series of illustrative cases.

Dr. Wesley M. Carpenter, of New York, read

A CLINICAL NOTE ON ALBUMINURIA AND GLYCOSURIA,

in which he directed attention to a few clinical features present in two cases which had fallen under his observation.

Case I. was a woman, aged fifty-five, a patient of Dr. Avery, who had been in good health up to one year previously, when she noticed that on some days she passed more than the usual quantity of urine. No other symptoms were developed until it was noticed that her face was swollen under the eye; swelling of the feet soon followed, with difficulty of breathing, and Dr. Avery detected the physical signs of œdema of the lungs. The symptom for which his advice was sought, was the sudden development of difficulty in breathing. At that time the œdema of the feet and face consisted of only a puffiness about the eyes and a moderate swelling about the ankles. Dr. Avery found that the urine contained sufficient albumen to solidify nearly its entire bulk. The specific gravity was 1.010, and the quantity was diminished. Microscopical examination by Dr. Carpenter revealed casts of nearly all varieties except blood, and in very great abundance.

A full dose of elaterium was administered, which operated freely. This was followed by the use of nitroglycerine, one drop of a one per cent. solution, three times a day. The urine was examined chemically twice daily, and microscopically once a day. At the end of two days only a trace of albumen could be detected. The specific gravity was 1.017, the quantity was nearly normal, and it contained only a few casts. At the end of a week both albumen and casts had disappeared entirely. The nitroglycerine had been continued, but at the end of two weeks its administration was interrupted with intervals of three or four days, and at the end of two months the remedy was discontinued. Examination of the urine was repeated at intervals, from this time on, but with negative results.

At the end of three months it was noted that the specific gravity was above 1.020, that the quantity had increased considerably, and it was then tested with Fehling's solution and revealed distinct evidence that it

contained sugar. From that date forward, now nearly two years, the patient has exhibited some of the ordinary phenomena of diabetes mellitus, the quantity of sugar varying according to the rigidity with which the prescribed diet had been adhered to and the regularity with which the arsenite of bromine had been taken. Albumen has not reappeared in the urine, and the general condition of the patient has remained fair.

The chief points of interest in this clinical history are, first, the well-marked symptoms of kidney disease; second, their rapid disappearance under the influence of nitroglycerine; and, third, the appearance of glycosuria, which has thus far remained permanent.

Albuminuria occurs not infrequently with glycosuria. Senator has expressed the opinion that under such circumstances the albuminuria is not to be regarded as evidence of Bright's disease, and that it indicates merely a swollen and slightly granular condition of the renal epithelium. In the case reported, however, it seemed evident that changes existed in the kidneys far beyond a simple swollen condition and granular degeneration of the epithelium of the uriniferous tubules.

Another question which arises is, Did not the glycosuria precede the kidney affection? The facts that the albuminuria disappeared entirely, and that the urine has not since contained casts, favor the view that this conclusion is not unreasonable.

Case II.—In June, 1885, Dr. X. gave Dr. Carpenter an accurately recorded clinical history of his own case for one month, in which it was found that the urine contained sugar, but in general the patient had not suffered any special inconvenience on account of its presence. The interesting feature of the case pertained to the diet. The patient, immediately on discovering sugar in his urine, restricted himself to the usual diabetic diet, and the result was the prompt disappearance of sugar from the urine according to Fehling's test. The first compromise consisted in eating gluten bread, when he found that within two hours after he had taken it sugar was present in his urine. This experience agrees with that obtained by a large percentage of those who have eaten diabetic bread bought at some of the more popular establishments. From this point the patient began to experiment with reference to his diet. He soon discovered that watermelons could be taken without being followed by sugar in the urine, and he therefore ate them very freely and with evident benefit. He also learned that he could eat raw peaches without limitation and with impunity. The doctor also discovered that ingestion of any of the cereals except buckwheat was quickly followed by sugar in the urine. He has been able during the last six months to eat buckwheat cakes without detriment, but recently he has noticed that their ingestion has been followed by a slight trace of sugar in the urine.

The most noteworthy fact concerning his diet is that potatoes do not produce sugar in his urine. This article has been particularly prohibited in diabetic diet lists. Doubtless in most cases its use is detrimental. Occasionally, however, cases have been reported in which potatoes have been eaten without being followed by sugar in the urine. Why the potato starch does not produce this effect while the starch in the cereal does, is still a question. Such cases verify the statement of Pepper, that the governing principle is that starch and sugar should be excluded from the diet of diabetics, but at the same time no inflexible rule applicable to every case can be made.

This patient has used arsenite of bromine, with restricted diet, and his general condition remains good.

In connection with the examination of the urine by means of Fehling's solution, Dr. Carpenter directed special attention to an additional step in its application proposed by Seegen, of Vienna, who had described a method by which he claimed to be able to detect sugar in the urine when it could not be detected by the tests ordinarily made. The method has been revived by Dr. McBride, of New York, who was aroused to its importance by a personal interview with Seegen and by seeing it applied. The method is as follows: Take, for example, a specimen of urine from which sugar cannot be precipitated by Fehling's solution. Filter this urine through *blood charcoal* (not ordinary animal charcoal), then wash the filter with distilled water, and test the third and fourth washings with Fehling's solution, and if sugar is present it will be detected readily.

The explanation is that the urine contains certain substances which are capable of holding sugar in chemical combination, that these substances are detained in the filter, and that by repeatedly washing the filter with water they are made to release their control over the sugar and allow it to be precipitated by the copper test.

Dr. C. Wey, of Elmira, read a paper on

MEDICAL TESTIMONY AND THE HYPOTHETICAL QUESTION,

in which he deprecated the present condition of expert testimony. One expert is contradicted by another equally competent expert. The charge that medical experts are hired advocates is capable of proof. The opinions of scientific physicians are often offset by those of local physicians of less attainment. Physicians and lawyers agree that the present system should be abandoned. Dr. Wey favored the selection of an expert or board of experts by the Court or by the Governor.

A hypothetical question, he said, may be based upon acts which are entirely separated from their surroundings, giving them entirely different significance, and based upon exceptional conditions of the individual. Every one's conduct is at periods open to the danger of hypothetical questions.

Dr. B. F. Sherman said that this is a question of great importance, and one which is neglected by the profession. The expert should be free from the bias of being employed by one or other party. He should be the witness of the Court. In many questions scientific evidence is stronger than that of supposed eye-witnesses. While what Dr. Wey says is true with reference to hypothetical questions, yet the opposing counsel have an opportunity to correct any misrepresentations which may be made.

Dr. Walter B. Chase, of Brooklyn, read a paper on

ANTISEPTICS IN MIDWIFERY.

He held that vaginal injections during the progress of labor are harmful by washing away the mucus which coats the vagina, thus retarding labor and increasing the danger of laceration of the cervix. Subsequent to labor the injection is not required and may unnecessarily irritate the patient and may even enter the uterus and the peritoneal cavity. Pyæmia and septicæmia do

occur sometimes where injections are not used, but that they are the result of their omission is not proved. The conditions under which antiseptics are to be used were then stated. The pregnant woman is to avoid all contagious diseases. If exposed to them, she should immediately change her clothing and bathe herself with an antiseptic solution. The physician, if exposed, should act in the same way. Instruments are to be treated with antiseptic solutions. Antiseptic injections should not be used in normal labor until its termination. In complicated cases, maceration of the fœtus, etc., their use may be indicated. In cases of retained placenta, laceration of the cervix or perineum, injections may be required.

Dr. Lucien Howe, of Buffalo, then read a paper on *The Recording of Cases.*

Dr. E. L. Keyes, of New York, read a paper on

THE TREATMENT OF VARICOCELE AND HYDROCELE,

in which he advocated subcutaneous ligation with catgut. He uses two different forms of needle, according to the character of the cases. One has a lance-shaped point, the other a hypodermatic-needle point of the size of No. 4 catheter, French gauge. These have long eyes near their points. Thorough antiseptic precautions are employed. Ether cannot be given, as the patient must be erect. Hypodermatics of cocaine may be used. The patient stands in a good light, the veins are separated high up from the rest of the cord, and are pressed toward the thigh The needle is armed with catgut and silk loop, and thrust through from before backward between the veins and the remainder of the cord. The end of the catgut is drawn out posteriorly, and the needle is withdrawn from the posterior opening until it can be placed in front of the veins, and brought out again through the posterior opening and the catgut threaded in the loop and withdrawn. A few fibres of the dartos are included in the ligature, and are broken by drawing on the scrotum. The catgut is then tied in a triple knot. The patient is confined to his house for forty-eight hours. This operation has never been followed by any complication, and has always resulted successfully.

In the treatment of hydrocele, he highly endorsed the method of carbolic acid injection introduced by Levis, and described the method of injection which he employs. He uses a glass syringe, holding one hundred minims, and fitted with a hypodermatic needle. If the hydrocele is small, the needle of the syringe is thrust in and fluid drawn off. The syringe is then washed, the needle being left in. Pure carbolic acid deliquesced by glycerine is drawn into the syringe, and thirty to sixty minims injected. The after-treatment is regulated by the degree of inflammation. If the hydrocele is large, the needle not attached to the syringe is introduced, to be sure that it is in the cyst. An aspirating needle is now introduced, and the fluid withdrawn. The carbolic acid is then injected through the hypodermatic needle. The operation, in his hands, has given most satisfactory results.

Dr. V. P. Gibney, of New York, then presented a short paper entitled

LESSONS FROM THE MANAGEMENT OF CLUBFOOT,

and for the convenience of the discussion directed attention to (1) the abuse of tenotomy. He claimed that tenotomy is indispensable in the management of certain forms of clubfoot, and that it is abused by failing to make a complete division of the tendon or tendons proposed, by the failure on the part of the operator to correct the deformity after the operation in congenital clubfoot; by too much correction in paralytic cases; by redividing tendons through cicatr cial tissue, and by incomplete after-treatment. He advocated immediate redressment in congenital clubfoot, even to the point of over correcting the deformity.

In paralytic clubfoot, his custom is to delay redressing the deformity until ten days have elapsed, and then to stretch, gradually, the new tissue formed between the severed ends of the tendon. Many failures are due to the lack of long continuance of apparatus, and the failure to keep said apparatus in repair. In his experience the only cases in which calcaneo-varus has followed a tenotomy for equinus were those where the limbs were in spastic contraction.

(2) He made a strong plea for the early treatment of clubfoot, for the reason that cases can be more easily managed; secondary bone and muscular changes will not take place, and the child will have no vicious habits to correct after it begins walking. To carry out early treatment, the assistance and cooperation of the mother or nurse are very important. The first step in treatment, at this early age (from three to six weeks), is to overcome the varus, without any effort whatever to correct the equinus. The correction of the varus is not alone sufficient, but the foot must be brought to an *equino-valgus* before the second stage begins, namely, the correction of the equinus. The division of the tendo Achillis is essential to the relief of the equinus.

(3) He expressed very little faith in "rapid cures," especially in very young children, or in those cases where resort is not had to tarsoclasis or tarsotomy.

(4) By tarsoclasis he meant the forcible breaking down of all obstructions by manual or instrumental force, with or without the employment of division of tendons and fascia, subcutaneously or by the open method. He presented Dr. Bradford's tarsoclast and limited its use to resistant and inveterate cases between six and sixteen years of age. As a dressing after operative procedures, he advocates the plaster-of-Paris bandage, where suitable apparatus is not convenient; this gives the surgeon an opportunity to secure the necessary apparatus at his leisure.

If tendons or fascia are to be divided in the plantar region, he advocates a modification of the open method as practised by Phelps. This open method is applicable to a certain class of cases, and he concluded his paper by calling attention to the importance of a proper classification of cases from a therapeutic standpoint, and deprecated the idea of subjecting every case of clubfoot to a single method of treatment. Success, he claimed, depends more upon the management of a case, and especially the management of the after-treatment, than upon any special method devised.

Dr. Phelps stated that his rule in tenotomy is to put the foot on the stretch, and divide the part that first offers resistance. The neck of the bone is to be divided last. He exhibited drawings illustrating the dressing of clubfoot. When the treatment is begun, elastic force should not be employed.

Afternoon Session.

THE COMMITTEE ON THE PRESIDENT'S ADDRESS

reported that the recommendation with reference to permanent members had been acted upon by the adoption of a resolution offered yesterday. It recommended that the names of such permanent members be announced to the Society, and, if no objections were made, that they be elected by the Society.

The recommendations of the Committee were then taken up seriatim.

Dr. Roosa moved to make the necessary amendment to the By-Laws, with the amendment that, if there be any objection, it shall be referred to the Committee on Ethics. Adopted.

With reference to meeting on alternate years at some other place than Albany, the Committee recommended no change. Adopted.

With reference to the honorary degree of Doctor of Medicine, no recommondation was made and no action was taken.

The Committee emphasized the President's position with reference to the bill for a State Board of Medical Examiners. Adopted.

The Committee recommended that the President-elect be authorized to appoint the Permanent Business Committee as soon as possible. Adopted.

The report of the Committee on Communication from the New Jersey State Medical Society was adopted

Dr. Porter moved that the President nominate a Special Committee to report at the next annual meeting what changes, if any, should be made in the number and terms of delegates from County Societies and other organizations.

Dr. R. F. Weir, of New York, then read a paper on

THE ANTISEPTIC IRRIGATION OF JOINTS FOR CHRONIC SEROUS SYNOVITIS.

He was convinced that this is an excellent method of treatment in chronic serous synovitis. It can be used in hydrops articuli. He recommended it in simple synovitis which resisted treatment longer than a month. The puncture is made at the inner or outer side of the synovial pouch, counter-pressure being made on the opposite side. This should be done with a large canula to permit the escape of flocculi. The joint is then irigated with a 1 : 20 solution of carbolic acid from a fountain syringe. The fluid flows off, and the injection should be repeated until it returns clear. The canula is then withdrawn and the wound treated antiseptically. Moderate reaction occurs, which subsides in a short time. A posterior splint is then applied, which is removed in ten days. Where the joint affection occurs in zymotic diseases corrosive sublimate solutions have been preferred by some. Seven cases were described.

Dr. Gerster said that he had found a five per cent. solution of carbolic acid useful in chronic hydrops for its irritant action. Where the contents are turbid and evidences of inflammation are present, corrosive sublimate solution, he thought, is better than carbolic acid. Where flocculi were present he had found it necessary to make an incision to remove entirely all the contents of the joint.

Dr. William Hailes, of Albany, read a paper entitled

WATER ANALYSES,

in which he described the results of the examination of water from springs, rivers, and wells of the State, with reference to their effects on culture material.

Dr. W. F. Mittendorf, of New York, then read a paper upon

REMOVAL OF A PIECE OF IRON FROM THE INTERIOR OF THE EYEBALL,

by means of a counter-opening. A man who was employed in drilling holes was struck in the eye with a piece of iron from a hammer. The piece of iron passed through the upper lid of the left eye and entered the globe near the inner canthus. The ciliary body and lens were uninjured. The ophthalmoscope showed a partially cloudy vitreous. At the lower part of the vitreous a triangular opening was made through the sclera, which was followed by the escape of a brownish fluid. The point of a permanent magnet was introduced, but without success. The iris forceps were then introduced and a piece of iron removed. Mild iridocyclitis followed, but the patient left the hospital ten days later, being able to count fingers at several feet.

Dr. Roosa thought it important to reaffirm the truth, that the danger of sympathetic inflammation is not passed when the foreign body is removed. It is good practice to remove the body when it can be done without too much injury.

Dr. Noyes, of New York, reported three cases in which he had used powerful electro-magnets, and from his experience he drew the following conclusions:

When a foreign body is to be removed by the magnet, it is not always best to explore the wound. The incision should be in the equator of the eye, and better in the lower hemisphere. The incision should be large enough to permit removal of the foreign body. If the first attempt is unsuccessful, a second attempt some weeks later may be successful, from the effect of the processes of absorption. In rare cases sight is saved. In successful cases the ball is saved and is not as great a source of danger as it was before removal.

Dr. L. D. Bulkley, of New York, read a paper on

UNUSUAL METHODS OF ORIGIN OF SYPHILIS.

His conclusions were: 1. Syphilis is not necessarily a venereal disease, but in a considerable proportion of cases it is acquired innocently, and often in a most unexpected manner. 2. The failure to obtain a venereal history, or evidences of local sores on the genitals, past or present, need not prejudice the diagnosis of a doubtful syphilitic lesion. 3. The syphilitic poison need not be acquired from any known source; the virus is capable of indefinite preservation, and may be communicated in a mediate manner, even through long distance and after some period of time. 4. Non-venereal chancres have frequently been treated and even excised as epitheliomata. 5. Non-venereal syphilis, so far from being mild and to be slighted, often exhibits great malignity.

Dr. Fessenden N. Otis, of New York, read a paper entitled

THE LIMITATION OF THE CONTAGIOUS PERIOD OF SYPHILIS IN RELATION TO MARRIAGE, ETC.

He first referred to the literature of the subject. Syphilis, he said, is never communicated directly from the

father to the fœtus. The mother must be infected. The semen is innocuous. There is no well-authenticated case of communication of syphilis, after the active or secondary stage. When the accumulation of all material causing the lesions of the secondary stage has been eliminated, the disease is no longer contagious. The tertiary symptoms are not necessarily syphilitic, but sequelæ. He considers it absolutely proved that lesions of the tertiary stage are not contagious; that there is possibility of spontaneous cure of the contagious stage; and that the limit of the contagion may be fixed at a period of five years.

Dr. D. H. Goodwillie, of New York, then read a paper on the

TREATMENT OF TERTIARY SYPHILIS OF THE NOSE, MOUTH, AND THROAT.

He held that diet and hygiene are to be carefully regulated. While mercury is valuable in the early stage, it is not useful in the treatment of the sequelæ. Iodide of potassium is beneficial if properly employed, but if pushed too far it may be injurious. For the removal of diseased bones, he uses a revolving burr. He presented a number of drawings and models of cases operated upon, and exhibited an electro-motor and storage battery for operating the burr.

Dr. C. R. Agnew, of New York, presented a paper

ON THE HYGIENE OF THE EAR,

based upon the records of more than 2800 cases. The great frequency of diseases of the middle ear emphasizes the importance of the hygiene of this region. Out of 2844 consecutive cases which came under his observation, 2183 were of diseases of the middle ear.

Evening Session.

The President, Dr. A. Vander Veer, of Albany, delivered

THE ANNIVERSARY ADDRESS.

He chose for his subject *The Water-supply of our Cities and Villages*, and the conclusions he presented were that we should, if possible, procure water, if needed for domestic uses, first by gravity and from mountain streams, lakes, or springs; next, if the former is not possible, then, the surroundings being safe and proper in every respect, by the Gang siphon driven wells. Next by a system of storage, but so arranging the reservoirs that proper aëration can be employed; and lastly, if necessity compels and it must be taken from sources known to be polluted, then a thorough system of filtration should be employed, and the water as completely oxygenated as is possible before distribution.

Thursday, February 4.—Third Day.

Morning Session.

After prayer, by Father Terry, the Committee on Hygiene reported progress.

Dr. D. B. Simmons, of Poughkeepsie, read a paper on

LEPROSY IN JAPAN.

The disease, he said, is confined to no class, and affects both the rich and poor. Those with light complexion, blushing easily, appear most likely to be affected. In the children of those affected a light color of the retina has been noted; and in confirmed cases there is hypertrophy of the right heart. The disease is regarded by the people of Japan as essentially hereditary. He earnestly opposed the idea of infection.

Dr. Bell thought that in Minnesota and Wisconsin, where Norwegian colonists have settled, there should be sanitary regulations enacted to prevent the intermarriage of persons in whom this disease is hereditary, and thus to prevent its appearance in this country.

Dr. William H. Bailey, of Albany, read a paper on

THE TREATMENT OF HEMORRHOIDS IN PREGNANCY,

He referred to the frequency of the condition and the absence of reference to it in the text-books. In reference to its treatment before confinement, he advised regulation of the bowels with a pill of aloes, hyoscyamus, and ipecac; after confinement, with a mixture of sulphate of magnesia, carbonate of magnesia, and sulphur. In cases in which the hemorrhoids are pressed out, he uses warm fomentations.

Dr. Ely recommended in those cases in which the hemorrhoids tend to protrude, the use of a rubber bandage passing between the thighs and secured to a muslin bandage passed around the waist. This may also be used in males.

Dr. W. H. Thomson, of New York, then read a paper on

THE PREVENTION OF HEMIPLEGIA.

He said that the impending danger may be recognized long before it occurs. The subject of prevention was taken up under the head of the three forms of embolic, syphilitic, and vascular hemiplegia. The embolic form cannot be prevented, except in so far as attention to the condition of the heart is concerned. The syphilitic form is preceded by and accompanied with headache and partial and varying paresis. Hypodermatic injections of corrosive sublimate were recommended for the removal of the perivascular inflammation. If the temporal artery be prominent, it indicates obstruction. The artery may become prominent by overdistention or from changes in its wall. If there is obstruction, the pulse becomes hard and long in its vibration, and this gives a deceptive feeling of strength, the pulse being incompressible. In the urine, unfavorable conditions are absence of color and low specific gravity. If the paleness of the urine is due to a nervous cause, it has no significance. In albuminuria with good color and average specific gravity, there is not much danger of hemiplegia.

An important element in the causation of hemiplegia, is the sudden increase of blood-pressure. The indications for treatment are, first, the employment of measures to lessen arterial tension; second, prevention of the accumulation of blood poisons by means of free respiration in the open air; and, third, removal to a mild climate. Chilling of the surface is to be avoided by use of suitable clothing. Much food should not be taken at any one time. From midnight to sunrise is the most dangerous period of the twenty-four hours. Excess of nitrogenous food is to be avoided. Fermented milk, prepared by the Arabian method, was recommended, also fish and vegetables. Abstinence from alcohol was most strongly advised and it was stated that tobacco should be avoided. Of medicines, small and repeated doses of corrosive sublimate, one-thirtieth of a grain,

were recommended. Benzoate of sodium was stated to be useful in lowering arterial tension.

DR. F. C. CURTIS, of Albany, then read a paper on

RINGWORM OF THE SCALP,

with special reference to its treatment. In private practice, this disease is generally very amenable to treatment; under the use of depilation (which is feasible where the involved area is small), daily scrubbing, and a mild parasiticide. But in asylums and children's hospitals, the large number of cases usually affected makes individual treatment less easy, and the atmosphere and the surroundings of so many affected with it make it much more intractable. In a recent outbreak in a children's hospital, several remedies were sought which would be effective without the tedious work of depilation. Oleate of copper was first used, but it was found of no value. Then several methods of using chrysophanic acid were tried; in a ten per cent. solution with liquor guttæ perchæ, as proposed by Dr. Alexander, painted on after shaving, and freshly applied every week, it was found but slightly irritating and moderately effective, a few being cured and in most the intensity of the disease being lessened; a one and one-half drachm to the ounce ointment, applied after shaving and the spots then strapped with adhesive plaster, was effective in cases in which the areas affected were not too extensive. A seven grain to the ounce solution in chloroform was used with depilation after other remedies had been employed, and by it a number of cases were cured. In a proportion of the cases it was found possible to eradicate the disease without depilation by chrysophanic acid and the air-tight application first mentioned. In those cases in which the disease remained intractable, the chloroform solution and an ointment of carbolic acid and red oxide of mercury, with depilation, effected the final destruction of the fungus. The epidemic was relieved in about four months after treatment began.

DR. F. R. STURGIS, of New York, spoke of the value of shaving beyond the margin of the diseased area, followed by blistering and the subsequent application of parasiticides. This is limited to cases in which the area affected is small.

DR. CHARLES CARY, of Buffalo, read a paper on

CREMATION.

He said there is an absolute demand for cremation, especially in populous places. He gave the history of cremation, and the process of incineration, as practised in Buffalo, was described.

The Committee on Nominations then presented their report, and the following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—W. S. Ely, M.D., of Rochester.

Vice-President.—Solomon Van Etten, M.D., of Port Jervis.

Secretary.—Wm. Manlius Smith, M.D., of Syracuse.

Treasurer.—Charles H. Porter, M.D., of Albany.

Censors. Southern District.—J. S. Warren, M.D., of New York; Walter B. Chase, M.D., of Brooklyn; and E. T. Brush, M.D., of Westchester Co. *Eastern District.*—Joseph Lewi, M.D., of Albany; M. J. Burton, M.D., of Troy; and Leroy McLean, M.D., of Troy. *Middle District.*—L. Griffin, M.D., of Binghamton; Robert Frazier, M.D., of Oneida Co.; and J. M. Gofi, M.D., of Cazenovia. *Western District.*—Theodore Dimon, M.D., of Auburn; M. S. Kittinger, M.D., of Lockport; and David Little, M.D., of Rochester.

For College of Medicine, Syracuse University.—H. Nims, M.D. of Onondaga Co.

Committee on Medical Ethics.—A. Jacobi, M.D., of New York; Arthur Mathewson, M.D., of Brooklyn; and J. Whitbeck, M.D., of Rochester.

Honorary Members.—Mr. Lawson Tait, of Birmingham, Eng.; Jos. G. Richardson, M.D., of Philadelphia; and Dr. Hansen Grut, of Copenhagen.

DR. FLOYD S. CREGO, of Buffalo, then read a paper on

MIGRAINE.

He pointed out the tendency of this affection to be hereditary. A study of its clinical history shows that it is rarely acquired after the age of twenty-five and that it declines in frequency after the age of fifty. It is equally common to both sexes. It bears a close relation to nervous affections and the bilious, gastric, and vasomotor theories of its origin are incorrect. The true theory, he believed to be that of nerve storm, allied to epilepsy. In its treatment he advocated the use, between the paroxysms, of minute doses of the bromides continued for months.

DR. F. W. HINKEL, of Buffalo, then reported a case of *Tubercular Ulceration of the Pharynx*, which ended fatally in a month.

DR. FRANCIS M. HAMLIN, of Auburn, read a paper on

THE EMISSION OF SEMEN AS A MEANS OF DIAGNOSIS OF DEATH BY HANGING.

He held that this is more constantly present than is generally supposed; and that when there is no external appearance of semen, pressure upon the urethra will cause its appearance. He thought it possible that this may occur in cases of sudden death from other causes; but to establish this point further observations are required. He recommended the following method for discovering seminal stains on cotton cloth: Put two drops of water on a glass slide, and then lay on the water a small piece of the muslin containing the supposed stain; fray out the ends and let it remain for five minutes; then examine the slide under the microscope. If the stain be on woollen cloth, shave off a portion of the stain, and treat the specimen thus obtained in the same way.

After a vote of thanks to the President and other officers, and to the committees, the Society adjourned, to meet in Albany, on the first Tuesday in February, in 1887.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, November 28, 1885.

THE PRESIDENT, S. WEIR MITCHELL, M.D., IN THE CHAIR.

DRS. CHARLES K. MILLS and JAMES HENDRIE LLOYD read

NOTES ON THE DIAGNOSIS OF SPINAL TUMOR.

The subjects of general and differential diagnosis of spinal tumors were alone considered; that of local diagnosis—*i. e.*, of position of the growth at different levels of the spinal axis—was deferred for another paper. The

conclusions were based on a study of fifty cases, three of which were personal observations, and the remainder were collected from American, English, French, and German literature. The general diagnosis can be made from a certain train of symptoms. These are of two classes: (1) Those which are directly indicative of such a lesion; (2) Those which are corroborative. The facts which point directly to a growth within the canal are: History of a constitutional or other cause, as of syphilis, cancer, tuberculosis, or traumatism. The onset and development are gradual and of a peculiar character. The first symptoms are those of an irritative lesion. This is probably due to the fact that tumors usually involve the membranes, as demonstrated by the cases studied. Pain in the back or limbs is usually, but not always, present. The *sensory phenomena*, such as hyperæsthesia, anæsthesia, and paræsthesia, come on with more or less rapidity, with oscillating and irregular manifestations. *Motor symptoms*, such as paresis, spasm (tonic or clonic), contracture, tremor, ataxia, also manifest themselves in a similar vacillating manner. Exaggerated *reflexes* present themselves in most cases. *Trophic* and *vaso-motor disturbances* develop as the lesion progresses. These are such as wasting, ischæmia, œdema, and decubitus. *Visceral disorders*, such as paralysis of the bladder or rectum, or of their sphincters, and disorders of the heart and respiration, are, sooner or later, marked symptoms. Vomiting, gastric and intestinal disorders are present in a limited number of cases. Mental disorders are present in only a very limited number of cases of tumors high in the spinal axis, and are not of diagnostic importance. Briefly stated, the phenomena which point with comparative certainty to the existence of spinal tumors are symptoms of meningeal irritation gradually increasing, and symptoms of slow compression of the cord.

The data in the cases studied were somewhat meagre as to duration. The usual duration is from six months to three years.

It may be noted that fever was present at some stage in a considerable percentage of cases, but was so irregular as not to be of much diagnostic value.

The differential diagnosis of spinal tumors was considered in reference to the following affections: Spinal congestion, hemorrhage, meningitis, caries, traumatisms, sclerosis, aneurisms, neuritis, metallic and infectious disorders, and hysteria.

Spinal tumors are of constitutional or special origin, as syphilis, cancer, tuberculosis, etc.

Onset is gradual and irregular. Duration is comparatively long.

Progress is gradual, by irregular advances, toward a fatal termination.

Symptoms are inclined to be irregular, *i. e.*, unilateral or local; later, bilateral. Special symptoms, as paralysis, spasm, sensory and visceral disorders, irregular as to time.

Decubitus and trophic changes are common late.

Reactions of degeneration are often present.

In *spinal congestion*, constitutional cause not present.

Onset is usually sudden and after exposure. Duration is short, from a few days to four months.

Disease is stationary, then retrogression of symptoms toward recovery occurs.

Symptoms are more uniformly bilateral; motor and other symptoms develop about same time.

Decubitus is rare.

Reactions of degeneration are not usually present.

In *spinal hemorrhage*, there is no special history, or history of cardiac or vascular degeneration.

Onset is sudden.

Progress is more regular.

The first symptoms persist, and secondary degenerations follow, and differ according to extent and location of lesion, but are more likely to be uniformly bilateral.

In *meningitis*, the symptoms of localized compression are absent. The girdle symptom is absent. The affection is sometimes curable.

Reactions of degeneration are absent.

In *caries*, deformity is rarely absent. Rigidity of the muscles of back is a very important symptom.

In *traumatisms*, there is usually a history. The symptoms are those of caries, myelitis, meningitis, or combinations of these, according to the character of case.

In *sclerosis*, the symptoms are usually of progressive systemic affections. Compression symptoms are absent.

Duration is longer.

Progress is gradual, and more regular.

Aneurisms are only to be distinguished when extra-spinal, causing erosion and compression.

In *neuritis*, there are irregular sensory, motor, and reflex disturbances; compression symptoms and visceral disorders are absent. It is curable.

In *metallic and infectious disorders*, a history of definite causation is present. In metallic disorders there may be special characteristic signs, such as lead line, etc.

In *hysteria*, a precedent hysterical history is usual.

Onset is often sudden. An emotional element is present. The symptoms are bilateral. Trophic changes are absent. No reactions of degeneration are present.

DR. E. N. BRUSH presented

THE BRAIN AND SPINAL CORD REMOVED THAT DAY FROM A CASE OF GENERAL PARESIS.

The case was an interesting one in connection with the question of the association of the physical and mental symptoms of paresis. In this instance physical symptoms preceded the mental by some months. In the winter of 1883–84 the patient was discovered by his physician to be ataxic; symptoms of posterior spinal sclerosis increased, and in January were associated with some mental disturbance. The patient was irritable and forgetful, but in a general way complacent. He thought his business was unusually successful, and that he possessed remarkable ability to transact business affairs. He was easily confused, and in attempting to make a short journey alone over a route with which he was perfectly familiar lost his way, and found himself several miles from his home on the wrong train.

His mental disturbance became more aggravated, and at last it became necessary to place him in a hospital. He was first placed in a private institution in a neighboring State, but there—doubtless after a slight epileptiform seizure—became so much disturbed that his removal was requested. In August last he was admitted to the Insane Department of the Pennsylvania Hospital.

On admission his mind was markedly impaired. He was complacent, quietly submitted to suggestion, and was apparently demented. There were considerable disturbance of speech, marked tremor of tongue and

lips and of upper extremities. Patellar tendon reflex abolished; pupils contracted to pinpoints and not responsive to light; Argyll-Robertson symptom was present; gait ataxic.

During his time in the Hospital the patient had three epileptiform seizures, such as are met with in cases of paresis. From these he readily recovered, but with increased impairment of mental and physical powers. After two of the seizures he was aphasic for some hours.

At eight o'clock on the morning of the day of his death, the patient had a slight vertiginous attack, followed by loss of power in arms and legs to a great degree, and disturbance of the power of coördination to such an extent that he could not, except after repeated trial, direct his hand to grasp an article held up before him. He protruded his tongue, opened and closed his eyes, and did other simple things upon direction; but to everything responded "yes," and did not seem able to articulate anything else.

At 3.30 P. M. the nurse's attention was attracted by the dusky appearance of his face, which had previously been pale.

The patient was seen at once by Dr. Brush, who found his face almost cyanotic, eyes injected, pupils closely contracted. In a few minutes he had a severe convulsion. At this time his temperature was 102⅖° F. The convulsion continued, and at 4.15 the temperature was 108½° F. Death occurred at 5.45. The temperature was then 107⅗°, and the body was bathed in perspiration. An hour after death the temperature of the body was 107° F. Post-mortem rigidity came on rapidly, and at eight o'clock was very pronounced.

Examination, sixteen hours after death: The conditions found were but briefly referred to, as the speaker intends to report this and some other cases more in detail to the Society.

The skull, especially in the temporal region, was quite thin; the dura was strongly adherent to the skull, and along the median fissure to the arachnoid pia; the arachnoid was thickened and opaque over the frontal and temporal convolutions, and along the Sylvian fissures; the pia in these locations was intimately connected with the cortex, and could not be separated without tearing it or the cortex cerebri. The sections made through the brain showed marked sclerosis; indeed, sections made through the anterior convolutions gave considerable resistance to the knife. The cord in the middle dorsal region was much injected.

NEWS ITEMS.

WILLIAM LAMBERT RICHARDSON, M.D., has been appointed to the Chair of Obstetrics in the Harvard Medical School.

THE OFFICERS OF THE CONGRESS.—*The Berliner klinische Wochenschrift*, in its issue of January 14, 1886, publishes the new list of officers for the Congress, and adds: "We miss many names of high repute in Germany."

THE NEW CONGRESSIONAL DIRECTORY gives the names of the physicians who are members of the present House of Representatives. The list comprises Drs. W. H. Cole and F. T. Shaw, of Maryland; Drs. I. M. Evans and L. E. Atkinson, of Pennsylvania; Dr. W. H. Ellsberry, of Ohio; Dr. John Swinburne, of New York; Dr. R. T. Davis, of Massachusetts; Dr. A. M. Dockery, of Missouri; and Dr. J. H. Gallinger, of New Hampshire.—*Maryland Medical Journal*, Jan. 30, 1886.

PHILADELPHIA CLINICAL SOCIETY.—At the annual meeting of this Society, held January 22, 1886, the following officers were elected for the ensuing year:

President.—Dr. John B. Roberts.

Vice-Presidents.—Dr. Clara Marshall, and Dr. Daniel Longaker.

Recording Secretary.—Dr. J. G. Heilman.

Treasurer.—Dr. L. Brewer Hall.

COCAINE A DANGEROUS DRUG.—A bill is being prepared by the New York County Medical Society asking the State Legislature to include cocaine in the list of drugs forbidden to be sold excepting on physicians' prescriptions. It is said that in New York many drug stores sell a paste made of coca leaves and lime, forming a cud similar to that used by the Peruvians as a stimulant. These preparations are in great demand.—*Southern Medical Record*, January 20, 1886.

HYDROPHOBIA.—The Secretary of the Antivivisection League of England argues, in a letter to M. Pasteur, that cauterization removes all danger of hydrophobia. Her son once, and she herself five or six times, have thus escaped the malady, and both offer to be bitten by any mad animal in M. Pasteur's laboratory, on the condition of being allowed to treat the wounds themselves.—*Amer. Pract. and News*, Jan. 23, 1886.

OBITUARY RECORD.—Died at Danville, Pa., on January 19th, after a brief illness, ALONZO AMERMAN, M.D., in the thirty-sixth year of his age.

NOTES AND QUERIES.

ERRATUM.

IN our issue of January 30, page 139, 12th line from bottom of second column, for "lessened *invariability*" read "lessened *variability*."

HYDROCHLORATE OF COCAINE IN STRICTURE.

NOT having seen any published account of the successful use of this valuable drug in stricture, I am able to report its efficiency in some cases at least. In a recent case where it was necessary to catheterize daily, and where a small instrument could not be passed on account of a painful stricture not far from the meatus, a few drops of a four per cent. solution of cocaine, applied by means of a common glass dropper, rendered the passing of the catheter *easy* and *painless* without systemic effect.

Respectfully, F. G. BYLES.

FREDONIA, PA., January 29, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 26 TO FEBRUARY 1, 1886.

SUMMERS, JOHN E., *Colonel and Surgeon.*—Retired from active service, by operation of law, January 24, 1886.—*S. O. 20, A. G. O.*, January 25, 1886.

WATERS, WM. E., *Major and Surgeon.*—Granted leave of absence for one month and fifteen days.—*S. O. 5, Division of the Atlantic*, January 23, 1886.

VICKERY, RICHARD S., *Major and Surgeon.*—Assigned to duty in connection with the Army and Navy Hospital, Hot Springs, Ark.—*S. O. 24, A. G. O.*, January 29, 1886.

BANISTER, J. M., *Assistant Surgeon.*—Ordered for temporary duty at Fort Warren, Mass.—*S. O. 16, Department of the East*, January 23, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLVIII. SATURDAY, FEBRUARY 13, 1886. No. 7.

ORIGINAL ARTICLES.

PHYSIOLOGICAL STUDIES OF THE KNEE-JERK, AND OF THE REACTIONS OF MUSCLES UNDER MECHANICAL AND OTHER EXCITANTS.

BY S. WEIR MITCHELL, M.D.,
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THE phenomenon known as tendon reflex, knee-jerk, myotatic contraction, has won steady attention since Westphal pointed out its value. Indeed, as regards what we may call its natural history there seemed little of a novel nature to be learned. The discussion as to its true parentage has also been narrowed so far as to enable us to feel sure that the blow on a tendon causes motion in the related muscle, not owing to an afferent impression from the tendon, but either to a direct irritation of the muscle concerned—*i. e.*, direct muscle response, or to the pull on the muscle causing afferent sensory impressions to the cord, and efferent motor response—*i. e.*, reflex action.

At this point we leave the matter for a time to turn to our own researches on the normal history of the "knee-jerk."

We shall relate in detail all the results we have so far obtained, and shall then endeavor to show the relation some of them bear to the possible theoretic explanations of the cause of the knee-jerk.

Our point of departure was a remark of Dr. Buzzard's, in a debate before the London Medical Society, in regard to Jendrássik's discovery, now three years old, as to the power of violent volitional muscular acts to increase the amount of the knee-jerk.

Jendrássik, in his essay,[1] states in a too brief paragraph that if, when the patellar tendon is struck, the patient clinches his hands, or makes other violent movement, the coincident jerk is increased. His other conclusions are: that the knee-jerk is a true reflex caused by mechanical irritation of the nerves in the tendon; that the muscle must be in a condition of passive tension; that voluntary innervation of the crural nerve lessens the reflex, or prevents it altogether; and that innervation of the sciatic favors the knee-jerk.

As the word knee-jerk will, of necessity, be frequently repeated in this article, it will be hereafter spoken of as k.-j.

[1] Beiträge zur Lehre von den Sehnenreflexen, von Dr. Ernst Jendrássik. Deutsches Archiv für klinische Medicin, vol. xxxiii. page 175, 1883.

Our own research has led us to examine with care—

1. The circumstances which increase, and those which lessen the k.-j., and to consider the influences exerted by volition, motion, sensation, electricity, tension, etc.

2. The characteristics of direct muscular motion caused by a blow, and the effects on it of voluntary motion, sensation, electricity, tension, etc.

These portions of our work must be regarded as contributions to a branch of normal physiology. We have kept them apart from the brief speculations which follow as to the theory of tendon reactions, and of the various novel phenomena which we shall describe.

Manner of obtaining the knee-jerk, and its normal variations. The experiments which give the best result are made by placing the subjects, healthy young men, on their backs on a lounge, so that they rest absolutely without muscular exertion. It is necessary or best that their hands be at rest, their eyes passive, and that they neither laugh, cough, speak, nor swallow, except when it is desired to test the effects of these acts on the phenomenon to be studied.

If the subject be seated, many of the results—indeed, all the coarser ones—can be had, but the more delicate experiments are apt to fail. The legs are allowed to hang over the foot of the lounge at varied angles with the thigh, which is itself bent at a very obtuse angle with the trunk. It is better for some of the experiments, however, to let the lower end of the thigh rest easily on two rubber pads placed at the sides of a wooden support, which is cut out below, so as to prevent pressure on the back of the thigh, and this for reasons which will appear elsewhere. Thus placed, the thigh is free from pressure, except where the tuberosities of the femur rest upon the pads, and the leg is at liberty to swing.

At the risk of being tedious, it is well to explain the modes of exciting the k.-j. so as best to get the effects of coincident and remote impressions. With a rubber percussion hammer, which should have a slightly elastic steel handle, and be not too light nor too hard, blows are struck on the tendon at intervals, or else a more or less constant excitement of the muscle is kept up by a series of quickly repeated taps. A sort of partial tetany is thus caused, and with care can be made quite equal, so that any new element of increase is easily seen. This, perhaps, is the best method for the more delicate tests. A good plan is to place across the tendon an oblong piece of rubber, and to strike on it. Still better is it, in sensitive persons, to place one's forefinger across the tendon, and to strike on this. We get thus a double means of judging the force used, because we can feel the responsive succession of jerks

of the tendon on the sensitive palmar face of the finger. A good impression is thus obtained of the briefness of the interval between the time of the blow on top of the finger and the time of the answering jerk of the tendon beneath it. Other and obvious precautions are needful at times, such as absence of constricting clothes, care to prevent swing of the pendant leg when struck.

The k.-j. varies in quality in healthy men. In some the same weight of blow causes pretty constant effects when steadily repeated at like intervals, but in others the effects are inconstant, and a series of slight motions are apt to be followed by an excessively exaggerated act. Such persons make bad subjects for experimentation.

This explosiveness is also apt to follow much excitation of the muscle.

Even in the young and healthy the k.-j. varies remarkably. On the whole, it is less good in the evening than early in the day, and possibly relaxing states of weather, as we shall show further on, may be capable of lessening these muscular responses. When familiar with the normal of one person's k.-j., it becomes easy to see that at times when he is not well or is exhausted, and especially, as we have said, toward ten at night, there may be some distinct lessening of the ease of muscular reply to the tap.

In one case of a healthy man, over fifty, there is often a good k.-j. in the morning in the left leg, and none, or almost none, later in the day; whilst, in the other leg, the jerk varies naturally from day to day, and is sometimes singularly good in both legs. A meal and three or four glasses of wine seem in him to favor its increase. Daily repeated excitations through the knee-tap in some healthy persons enormously increase the ease and amount of muscular response. In one case we even felt some concern at the exaggeration of the symptom we finally produced. In some people the muscle soon ceases to contract if the taps be often repeated, at one sitting; in others as healthy, it is very difficult to wear out the power of reply.

Effect of voluntary acts on knee-jerk. While the subject was at rest, as described, the tendon was struck at intervals by an assistant. An effort was made to move the scalp voluntarily, so as to make the volition coincide in time with the tendon tap. When successful, the k.-j. was increased.

The movement of one ear, an act only possible with a few subjects, reinforces the k.-j. Frowning increases k.-j. Distinct but not violent winking increases k.-j., when coincident with the tap and in good subjects. Thus if we wink and strike at different intervals an accidental synchronism reinforces k.-j. Winking forcibly with either eye gives like results, and one eye can thus reinforce k.-j. for either leg. Rolling the eyes from passive central fixation to extreme limit of motion adds to k.-j.; a sudden convergence on a very near point does the same; but these beautiful experiments failed when the subjects were seated, and succeeded when they were supine and used the knee crutch described.

Inspiratory and expiratory acts, if volitional and decided, increase k.-j., especially at the beginning of the movements; and if we suddenly fix the chest either in a full or partly empty state, there is a like result but not well marked.

A laugh or sneeze remarkably increases k.-j. Phonation gives in many people admirable results. To obtain these let the passive supine subject sound, with emphasis, the letters in turn, but so slowly that time may be allowed for a tap on the tendon to be made between each letter as well as with each act of phonation. When this is done, the exaggeration of the k.-j. can be well seen when the knee-tap coincides with the utterance, as contrasted with the lesser effect of the tap between each utterance.

Deglutition gives also very positive increments to the k.-j., but less surely than strong phonetic acts. To avoid chance of some volitional reinforcement, most of these experiments were repeated on ignorant persons to whom an assistant gave a signal to perform a certain act, or who were told to wink or to sound vowels, whilst the operator noted the results. These results are all easy enough to get if we take the precautions mentioned and select men with responsive muscles.

The following coarser muscular acts increase k.-j.:

Action of platysma myoides.

Turning the head strongly.

Drawing in the belly.

Rotation of body on pelvis.

All these acts increase the k.-j. most during the movement and least when the act is complete.

Arms and hands. These parts give, when in forcible action, great increase of k.-j. Elevation of the arms and all other strongly done acts, but especially violent clenching of the hands, are effective. The moment of greatest effort slightly precedes the maximum of reinforcement to the k.-j. Slow or gentle movements give little or no effect.

In a strong, right-handed man, violent closure of the left and much weaker hand gave less addition to k.-j. than similar effort with the right hand. Either hand, with equal amount of action, seemed to affect alike the knee of its own or the opposite side. Motion of one finger suffices to reinforce k.-j.

Legs. Strong movements of the toes in flexion or extension in the leg struck or in the other much increases k.-j., and apparently either act gives an equal result, for its own or the other leg. Large motion of one leg in flexion and extension increases k.-j. of its fellow. The muscular acts of the leg struck were carefully studied, and the more so because our results do not precisely agree with some of the conclusions of Jendrássik.

Voluntary use of quadriceps extensor. All strong contractions of the muscles concerned in k.-j. abolish it entirely. With some care we may eliminate the synchronous activity of the opponent flexors of the leg and so get an expression of the pure voluntary action of the extensor. Thus with the leg of a sensitive subject at a good angle for k.-j. have the foot held, or stay it against some immovable obstacle. Then let him will to extend the restrained foot and with a little trial it will be found that the extensors can be called into isolated activity. If they be strongly contracted, no matter at what angle be the leg, all k.-j. ceases. Now relax them a little and then most suddenly the k.-j. returns in excessive de-

gree. It is curious to note it coming and going with increase or decrease of contraction of the muscles concerned.

Therefore, all violent innervation of the crural nerve prohibits k.-j. All milder innervation increases it. When a movement of the quadriceps extensor is willed about equal to that produced by a tap on the tendon, and a tap is made to coincide with it, an interesting result is obtained. If the act be timed correctly the result is a large sudden movement, which has to the observer, who is thus struck, little of the qualities of an act of will. It is abrupt, jerky, and does not seem to be moderated or passively antagonized as are our ordinary voluntary motions. It has only the peculiarities of a knee-jerk.

Action of leg flexors (opponents of the extensor group). With the patient seated, thigh on crutch, the leg is voluntarily flexed from a level with thigh whilst the k.-j. is being tested; good reactions are obtained, but in this experiment both the flexors and the moderating extensors are functionally active. To get the single influence of the flexors, with the thigh on the crutch, and the subject seated, an assistant suspends the passive leg at the ankle whilst the subject flexes the leg gently, the assistant yielding to the motion. There is then no notable extensor activity. Result, good k.-j. Next active flexion is strongly resisted. Result, great exaggeration of k.-j. up to such flexion as abolishes k.-j. by tension, as will be seen further on.

In these latter observations, if well managed, the action of the extensors is excluded. Sciatic innervation, therefore, whether gentle or strong, reinforces k.-j.

As regards all of the foregoing experiments, the reinforcement of the k.-j. lasted while muscular acts were being performed, was best when they were most intense, and continued for an appreciable time after volition had ceased. This continuation of influence was particularly noticeable with the more violent muscular acts.

Effect of continuous efforts. With the subject supine, blows were struck at intervals, and meanwhile the upper extremities, neck, and back were kept in a state of violent muscular fixation. The k.-j., at first excessive, soon became less and less, but did not quite wear out during any length of possible effort, although it continued to be feeble for some minutes after exertion ceased. In the other leg it remained as usual.

Effect of states of tension. These experiments were made with great care, because they have some bearing on the belief expressed by Jendrássik, Tschirjew, and Gowers, that a state of passive tension due to flexion of the leg on the thigh or to other means —*i. e.*, pushing or striking downward the patella— is a needful factor in enabling the tap to cause k.-j. In other words, they help to determine whether or not anything beyond such muscular tension be requisite, as exists in a relaxed muscle.

A blow on the tendon below or just above the knee whilst the limb is passively flexed, of course most readily evolves the k.-j. We have then present two elements, muscular tension from moderate stretching and also circumstances which mechanically favor the k.-j., as the tightened tendon enables us when we strike it to influence more and more abruptly the mass of the muscle. Is the passive tension essential?

In some sensitive but healthy subjects the following experiment succeeds at times:

The subject is seated on the floor, passive, with the back supported. The leg is in full extension on the thigh, and the body at a right angle with the latter. Complete relaxation is thus attained. Then the stiff rubber cushion is placed above the knee, and a blow is struck so as to fall on it at right angles with the line of the muscle, or the pad is so placed as that the force is rather directed a little upward. The position of the tendon above the knee is such that it has under it a cushion of areolar tissue. The blow evolves a distinct jerk of the muscle. The infrapatellar tendon under like circumstances does not give a response, because the blow must take up its slack and that of the suprapatellar tendon before the pull reaches the muscle, but in this position of the leg there is not space enough beneath the slack tendon below the knee to allow this to occur. In the experiment stated, there is no preparatory tension from knee flexion, and we have only ordinary muscular tone as a preparation. That the result is comparable to that obtained when we tap below the knee with a mechanically tense tendon, is shown by the fact that the motion caused by a blow above the knee, managed so as not to push the patella downward, is reinforced by motion elsewhere. They who hold with Gowers that preliminary passive tension is needed to enable a pull on the muscle to excite it, will plead that every blow on the tendon above the knee placed as described acts at one and the same moment to pull on the muscle and to excite it, and this may be true, nor do we see how entirely to eliminate this element of doubt.

If with the leg relaxed, a blow on the suprapatellar tendon, either at a right angle with the thigh or even in a slightly downward direction, so as to depress the patella, causes a muscle response, the time should be that of a reflex and not the shorter time of a direct muscle act, because these methods do at one and the same moment involve and cause muscle tension (reflex preparation, Jendrássik, Tschirjew, and Gowers), and also muscle excitation. This has not been shown as yet to be the case, and until it has been, there seems no reason to seek beyond the existence of common muscular tone to explain the k.-j. If the time should be found to be that of a reflex act, it would favor the idea that the k.-j. should be so considered.

Effect of extreme tension. It is possible to abolish the knee-jerk even in spastic paralysis by increasing the tension of the muscle. I. P., æt. thirty, case of spastic paralysis. The reactions are excessive. He was placed on his face so that the body and pelvis lay on an upward slope. This brought tension on the upper part of the quadriceps extensor. Then the leg was bent slowly, and at a certain angle the k.-j. rather abruptly failed, as it always does under like circumstances in the normal subject.

As *strong* flexion of the leg upon the thigh has

the effect of greatly diminishing or even abolishing the k.-j., the question arose whether this was caused, in part at least, by the great mechanical disadvantage at which the patellar tendon then was placed, as a blow upon it in this position would have the minimum effect upon the muscle. To investigate this point, the subject was placed upon the floor on his side with the underneath hip and knee each at a right angle; in this position a marked k.-j. was obtainable; now, by slowly extending the trunk upon the thigh, keeping the thigh and leg perfectly quiet, an increased tension was made at the *upper end* of the muscle, while the mechanical arrangement at the knee remained unchanged, except as concerned the increased tension: this procedure had the effect of gradually diminishing and at last even abolishing the k.-j. When the subject was placed upon his side, with the body at a right angle to the thigh, and the leg almost perfectly straight, a very slight k.-j. was obtainable; now if the trunk, as before, was slowly extended upon the thigh, the k.-j. increased markedly with the increasing tension, as now the slack in muscle and tendon was taken up by the pull from above, so that the tap on the tendon could make itself felt upon the muscle more markedly; a further flexion of the leg on the thigh now increased the tension too much and diminished the k.-j.

It might be considered by some that extreme tension by pulling on the fibrous sheath of the muscle makes the sheath so tense that any external blow is mechanically hindered from impressing the muscle beneath; but the following very interesting and novel experiment appears to make it possible that there is also present a physiological element, although the mechanical arrangement may have some influence. The poles of the secondary coil are placed, for instance, on the belly of the flexor sublimis digitorum with a current that is sufficient to flex powerfully and very painfully the ring and middle fingers into the palm, so as to put them entirely beyond the control of the will. Then an assistant forcibly extends the flexed fingers and wrist; this procedure at first increases the pain, but by the time the wrist and fingers are fairly extended the contraction and the pain begin to diminish until at full extension pain is almost entirely gone, only a sense of discomfort remaining, and the fingers are again under full control of the will. If now we release the wrist, the fingers return to their powerfully flexed condition and the pain becomes as great as before.

It seems probable, on the whole, that moderate tension is mechanically of use in enabling us to get the fullest k.-j., but is certainly not essential to the evolution of lesser manifestations of the phenomenon. Extreme tension, of course, may make it mechanically difficult to get k.-j., and also to observe it, but it seems likely that there is also involved in this apparent inhibition some physiological obstacle due to stretching of the muscle. The problem is one of great obscurity, and needs laboratory study.

Effect of acts of volition on organs functionally inert or on lost parts. When one of us willed to move his ear, over which he had no control, a considerable increase of k.-j. followed. Persons who have lost limbs often retain the power to will a motion of the absent member, and have then in their consciousness a sensory representation of such motion. It is very remarkable that these patients can never seem to themselves to make sudden, quick, or very complete movements of absent parts. It was needful to be sure that the stump was not moved. With proper precautions, the effort to move by will a non-existent part reinforced k.-j. distinctly in a case of loss of left arm at shoulder, and in a knee amputation. These results have value as proving that the reinforcement is not due to the muscular movement which, in the unmutilated, follows an act of will.

Elbow-, ankle-, and jaw-jerks. These obey as to increase from remote voluntary muscular acts the same law as do the motions due to knee-tap. The elbow-jerk is hard to obtain, but in one or two of our subjects was very good and was reinforced easily by willed toe movements, as also by those of the other hand.

The same remarks apply to the jaw-jerk[1] (chin-reflex), although this movement is not so readily shown in some subjects. This jerk is most easily obtained by allowing the jaw to hang passively, or by gently supporting it with one hand while with the other a blow is struck on the teeth or chin in a downward direction with the rubber hammer.

Effect of one tendon tap on another. Numberless experiments were made to learn if the one k.-j. reinforces the other. Thus we keep the right quadriceps extensor moderately excited by a series of quickly repeated blows on the tendon, and call out the most extreme k.-j. possible in the left leg. We do not add to k.-j. of its temperately excited fellow member.

The normal knee-jerk, ankle-jerk, and arm-jerk do not react on one another. All of these experiments as between the arm- and leg-jerks are difficult to manage, but easy enough as concerns the various leg motions.

The experiment of Jendrássik naturally led us to carry out, in regard to volitional movements, the investigations we have detailed; but we were quite unprepared for some of the phenomena which presented themselves, when we tested the effect of sensory stimulation on the k.-j.

Influence of sensations upon the knee jerk and other phenomena of like nature.

Touch. Mere touch or rough but painless contacts, which call out the well-known subcutaneous reflexes, do not influence k.-j.

Pain. This is a fertile means of reinforcement, as the following experiments show:

The subject being at rest, supine, with the right leg on the crutch, a series of equal blows, at regular intervals, is struck on the tendon. A second assistant takes hold of a hair on the thigh and twitches it so as to cause pain at the moment of one of the blows on the tendon. Nearly always this gives rise to a notable increase of the k.-j. If rapid blows,

[1] "The Chin-reflex: A New Clinical Observation," by Morris J. Lewis, M.D. Philadelphia Medical and Surgical Reporter, May 9, 1885, p 591. Read before the Philadelphia Neurological Society, March 23, 1885.

which keep the foot slightly extended, be used, the pull on the hair exaggerates the k.-j.

A needle-prick on the thigh or anywhere else on the surface of the body or limbs, below the neck, has a like influence, and is better seen when the hands are pained than the arms or trunk. Like hurts to the neck and face, and even more decisive hurts, such as a pull on the moustache, give little result. Needle-pricks are most efficient on the thigh of either side; but all of these phenomena vary with the individual; the efficiency of all such influences wears out after much repetition.

Sudden, sharp pain seems to act best. Chloroform burning is not available; but a sharp pinch of the skin of either leg or arm reinforces k.-j.

Heat. When heat is great enough to cause sudden pain it increases the k.-j., whenever used on arm, leg, or trunk, but as regards the face and neck in some persons it is efficient, and in others causes no response. The touch of a hot knife-blade on the thigh struck gives excellent results. If the heat used cover a large sensitive surface and is not great enough to cause pain, as when an assistant drops the passive hand of the subject into rather hot water, a good increase of k.-j. is observed.

Cold. Mild impressions of cold over limited surfaces cause no visible effect. The sudden application of water at 32° F. to the entire hand often strongly reinforces the k.-j., or a cold spray on leg, widely used. More remarkable are the effects of a jet of rhigolene spray on the skin of the thigh struck. At the moment of chill there is little effect; but when abruptly the part grows white and frozen, there is a momentary sharp painful sensation, and the k.-j. increases, and is exaggerated until the entire part thaws, after which, for a time, the k.-j. is below the normal of excitability. The same results may be had with rhigolene on the other leg, or either arm or hand. In one person, freezing of the neck or face, cheek, or temple, gave remarkable additions to the k.-j. In another, rhigolene freezing of the neck caused no obvious result.

Taste. Our experiments in this direction were limited to the effects of red pepper, salt, and vinegar on the k.-j.; the results were entirely negative.

Hearing and smell. No experiments were tried by exciting these senses.

Sight. When a magnesium wire is burned, and a succession of abrupt exposures of the eyes is made by moving a screen quickly to and fro, the first effects are not notable, but at the third or fourth, as the light becomes painful, there is a reinforcement of k.-j.

Effect on the knee-jerk of pressure on, and stimulation of the sciatic nerve. For some time we have noticed that if the thigh of the side to be investigated was supported by a staff, or by the arm being placed under it, so that the pressure came upon its middle third, the k.-j. was obtained with difficulty, or not at all. To investigate the cause of this, pressure was made upon the sciatic nerve in the middle third of the thigh with a tourniquet, for the period of fifteen minutes; this caused pain in the spot pressed upon, tingling, and, finally, numbness of the leg and foot.

During this experiment the k.-j. of the side experimented on rapidly diminished, until it could scarcely be obtained; while the k.-j. on the opposite leg remained unchanged. On several occasions, when the leg had gone to sleep from sitting in a cramped position, the k.-j. was tested, and always found to be less than that of the opposite leg.

These facts are curious, and rather at variance with some of our other experiments.

Even the encircling band produced by rolling up the pantaloons above the knee sometimes makes enough pressure to interfere materially with the k.-j.

To test the effect of direct stimulation of the sciatic nerve on the k.-j. a full-grown male rabbit was etherized, and the k.-j. found to be good; the sciatic of the opposite side was now carefully dissected out and severed from its muscular connections. Tetany of the extensor muscles of the untouched leg was now caused by taps on the tendon, and then the sciatic was stimulated by a current from a Du Bois-Reymond coil. With the coil as far out as thirty or twenty centimetres there was no appreciable effect on the k.-j., but with the coil at fifteen or ten centimetres there was a very marked reinforcement of k.j. This was verified over and over again, and the effect of the application was to make the k.j. more easily obtainable for some time afterward. The cord was then cut in the upper dorsal region, and the experiment was repeated with the same result. With the coil at five centimetres distance, the k.-j. was now evoked when the tap on the tendon was made with a thin piece of whalebone, so lightly as to cause not the slightest visible movement in the muscle.

Nitrite of amyl. The inhalation of nitrite of amyl carried to full flushing of the face appeared in no way to influence the k.-j.

Ether. Our experiments in this line were but few, and confined to animals. In dogs the k.-j. was not materially affected by light etherization after the first excitement stage was over, but full etherization entirely abolished it, and it was curious to witness the k.-j. come and go with the varying stages of anæsthesia. This was not so apparent in the rabbit.

(To be concluded.)

RESECTION OF THE LARGE INTESTINE FOR CARCINOMA.[1]

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THE resection of a portion of an intestine for disease of its coats has been performed in Europe some thirty-one times, but it is believed that the following case, the first successful one in this country, is sufficiently unique to justify me in asking the attention of this Society to a brief consideration of the subject. The details are as follows:

In October of last year, 1885, the patient, a tall, fully developed man of fifty-four years, was admitted to my wards in the New York Hospital, for the treatment of what he considered bleeding piles. He gave

[1] Read before the New York Surgical Society, January 26, 1886.

the history, that for two years past he had had daily six to ten bloody and painful passages from the bowels. During the tenesmus induced by these, there was at times a considerable prolapse of the rectum. There was found, by digital exploration of the rectum, one or two small quiescent internal hemorrhoids, and, in addition, at the distance of a finger's length, could be felt, obscurely, the lower surface of a hardened mass, which, under anæsthesia by ether, could, by bimanual examination, be outlined as an irregularly elongated mass, movable from one side of the belly to the other, and situated at the upper border of the pelvis. No pelvic or lumbar glands were found enlarged, nor was any visceral complication detected. The conclusion was arrived at, that it was tuberose carcinoma of the upper end of the rectum, inaccessible to operative procedures by the anus, but removable by laparotomy.

The condition of affairs, and the risks attendant upon such an operation, were laid before the patient, who was a man of unusual intelligence, and who, after deliberation, determined upon submitting to the operation. This was therefore done on October 22d, under full antiseptic precautions, and in the operating room of the hospital devoted to abdominal sections.[1]

The diet of the patient was restricted for forty-eight hours previously to semi-fluids such as milk, bread, and eggs. An enema induced defecation a few hours before the laparotomy, and the urine was passed just before the etherization. Under a carbolic spray (which, in certain operations involving the cavity of the abdomen or a joint, I still prefer), an incision four inches long was quickly made from one inch below the umbilicus downward, and the peritoneum reached, seized and lifted between two clamp forceps, opened, and divided to the full extent of the wound by straight scissors. The intestines, as was hoped, were undistended, and three fingers of the left hand were then carried into the peritoneal cavity, the tumor readily caught and drawn out of the belly wound after some depression of the abdominal walls, and surrounded by flat disinfected sponges. It was a knobbed mass four inches in length, and its upper edge reached nearly to the sigmoid flexure of the colon. Temporary ligatures of heavy, soft, sublimated silk were carried through the mesorectum, above and below the mass, and the intestine, for a distance of five and a half inches, including the tumor, cut off, and removed after tying off the mesorectum by several ligatures of silk parallel to the bowels, dividing it as far from the latter as possible. In the stump thus made after extraction of the neoplasm, were seen two small enlarged glands; these were dug out, and a further portion of the mesorectum cut away after being duly ligated.

The important point as to whether a reunion of the divided intestine should be had, was decided negatively, and the creation of an artificial anus determined on for the reason, that though the cut ends could be easily apposed, yet, in spite of all the care that might be exercised, leakage would be apt to occur. Reichel found this had happened in 31 instances out of his 121 collected cases of intestinal resection; in 13 of these it caused death, in the others, fecal fistulæ resulted.[1] Moreover, the junction would have to be made deep in the pelvis, some four and a half to five inches from the anus, where the safe suturing of the bowels was felt to be a matter of extreme doubtfulness.

This was fully verified when, after the above decision was acted upon, the inversion and closure of the lower end of the bowel were attempted. Great difficulty was encountered in placing the double row of serous sutures (Czerny-Lembert) after the preliminary suture of the mucous membrane, and a third row was required at the posterior part to effect a satisfactory dimpling in of the bowel. And lastly, the chance of local return of the growth influenced me in preferring the establishment of an artificial anus.

This was accordingly done by carrying the upper divided end of the gut into the superior angle of the wound and allowing it to protrude, so that the part encircled by the temporary ligature (which was then cut away and a few bleeding points secured) should be outside the peritoneal cavity, in the event of any ulceration from its transient constriction. It was there fastened by three or four sutures, and the abdominal wound, after a fresh inspection and testing by sponges had shown that the peritoneal toilet had been properly made, was closed by strong catgut sutures, first passed through the whole thickness of the belly wall, but not tied till afterward, then the peritoneum itself was brought together with a continued catgut suture, and lastly catgut was passed through the skin and muscle to the peritoneum. This method of closure has been found best to avoid the formation of mural abscesses, but does not entirely get rid of, I regret to say, the smaller stitch abscesses. A sublimated gauze dressing on which iodoform was dusted was applied to the wound, and over that a large mass of absorbent cotton and a firm body bandage.

From the time of the operation until the 27th Oct. (five days), the patient complained severely of pain on each side of the wound, with occasional hiccough, and during the last twenty-four hours increasing distention of the abdomen occurred. His pulse however ranged below 90, and the temperature was less than 100°. Two of the deep stitches were cut to ease the tension of the swelling and to relieve the commencing tympanites. An evacuation of the bowels was solicited by gently introducing through the artificial anus a soft rubber catheter and carrying in several ounces of warm water. No immediate effect resulted. He was therefore ordered the next morning to take two ounces of Hunyadi Water.

On Oct. 28th, on removing the dressing, as his bowels had moved painlessly under the action of the cathartic, it was found that the wound was open throughout its whole extent, and in the mass of feces filling it was seen a coil of small intestine. After carefully wiping away the feces it was per-

[1] This is a small special room with the walls rounding into the ceiling, thickly painted, so that all the room and its few contents can be washed previously to an operation with, first, soft soap and water; secondly, with a solution of sublimate, 1:1000; and then, thirdly, for two hours bathed with the fumes of burning sulphur.

[1] Deutsche Zeitschr. für Chirurgie, No. 19, 1884.

ceived, fortunately for the patient, that adhesions existed sufficiently to shut off the general peritoneal cavity, which fact allowed thorough cleansing and washing of the bowel, and its reposition in place, when the wound was sewn up with three wire sutures passing down to, but not through, the peritoneum, the adhesion of which to the intestines beneath rendered this latter impracticable and unnecessary. No reaction followed this mishap. The patient's general condition steadily improved, with evacuations from the bowel once or twice a day, which, in spite of the impermeable dressings contrived, so frequently entered the wound as to preclude secondary union, and its healing proceeded by granulation to completion in about seven weeks, with a firm, unyielding scar.

From November 4th to 13th: Though progressing favorably, he had occasional pain in the belly and slight temperature elevation, up to 101° at night, without sweating or chills, and very little pelvic tenderness.

On Nov. 14th I was informed that he had had during the previous night a fecal discharge from the anus. It had been thrown away by the nurse, but was reported as being of ordinary character and very soft. This was thought to have been mainly the contents of the rectum, left in at the time of the operation. On the 15th, considerable flatus was passed *per anum*, and on the 16th he discharged by the same orifice nearly a pint of dark brown fluid of a strongly fecal odor, greatly to his relief.

Speculation on the possible source of a fecal or flatulent discharge took several directions, two of which seemed probable. The first was, that during the last transfixion of the mesocolon by a doubly threaded needle, the point of this instrument had suddenly struck and torn an adjacent loop of small intestine, quite through to the mucous membrane. The slit was promptly sewn up by several Lembert sutures. This might have given way and discharged itself per rectum.

The second possibility was this: it was noticed after the second slice of the mesocolon had been removed, that the triangularity of this tissue had not been preserved, and that the portion of the bowel leading from the proposed artificial anus, for three inches, had a somewhat scanty mesentery. Its truncation to avoid gangrene from a defective blood-supply was discussed with my colleague, Dr. Bull, but on holding the mesocolon up to the light, the vessels going to it seemed to be large and numerous, and hence it was preserved entire. It was possible that a spot of gangrenous intestinal wall from this cause might thus have allowed a fecal extravasation to be conducted externally by the disused rectum.

No further discharge took place until November 20th, when two ounces of a thin, light brown, markedly purulent fluid were discharged *per anum*. On the introduction of the finger into the bowel the upper limit of it could not be felt, and a rubber drainage tube was thereupon passed in at least six inches, giving vent to three or four ounces of very fetid brownish pus. The tube was left *in situ* covered by sublimate gauze, and the next day, and daily thereafter, the abscess cavity was washed out through it, at first with a 1 : 5000 sublimate solution, and then 1 : 10,000, and finally, with Hey's solution (sulph. zinc, gr. ij; spts. lavand. co., ʒj; aquæ, ʒj). This discharge ceased in about three weeks. The rectal tube was worn ten days without discomfort.

It was evident that the above hypotheses were all wrong. The abscess, I think, was formed from some hemorrhage or from the stump enclosed by the silk ligatures, which made a mass uncovered by peritoneum, nearly two inches long, by three-quarters broad. This had been dusted by powdered iodoform before the abdomen was closed, and on reflecting on the operation, even before the disclosure of the abscess, it was felt that it would have been wiser surgery, in similar circumstances, to have left in a drainage tube. During the evacuation of this purulent collection the patient complained sorely of pain over his liver, and this was found to be enlarged. As the cessation of pus formation took place, the hepatic tenderness disappeared, though the increased dulness on percussion remained. Whether this signifies a secondary deposit in that organ, I cannot yet say, though I fear it may so culminate.

He left the hospital for his home, in Scranton, Pa., January 2, 1886, rapidly gaining in strength and flesh, and controlling the discharge from the artificial anus better by a simple plug of cotton or gauze secured by a strip of adhesive plaster, than by the many other expedients which were suggested, and in other cases successfully tried. The pathologist's report of the tumor pronounced it one of encephaloid cancer.

Remarks.—I have been able to collect thirty five cases in which excision of a cancerous intestine has been resorted to, and in all save one (Schede's) the disease has involved the large intestine; in an additional case (Credé's) the operation was abandoned, only a small piece being removed for microscopic examination. Of this number, it is to be noted that of the five cases[1] in which the operation was done during the exhaustion attendant upon an acute obstruction of the bowel, all died from the shock of the operation, hence this condition is considered by Schede to contraindicate the operation. Of these 33 cases (for in one, No. 18, the result is unknown) there was a mortality of 17, or 51.5 per cent., only a little greater than that which results from resection of the large intestine from other causes,[2] and which is given in Maydl's recent article on the subject at 50 per cent. Aside from the shock, ten died within forty-eight hours; in a number of cases, the progress was complicated by the escape of feces, as shown at the autopsy (four died from peritonitis from this cause), or by the presence of an intestinal fistula. When the latter occurred in the course of an otherwise favorably progressing case, it, as a rule, closed later spontaneously. This escape of the intestinal contents was due either to a faulty suturing, or to the minute gangrene so apt to take place from slight unperceived stripping up of the mesocolic attachments. For the sutures, silk or catgut was used, and though,

[1] Thiersch, Gussenbauer, Schede, Guyon, Treves.

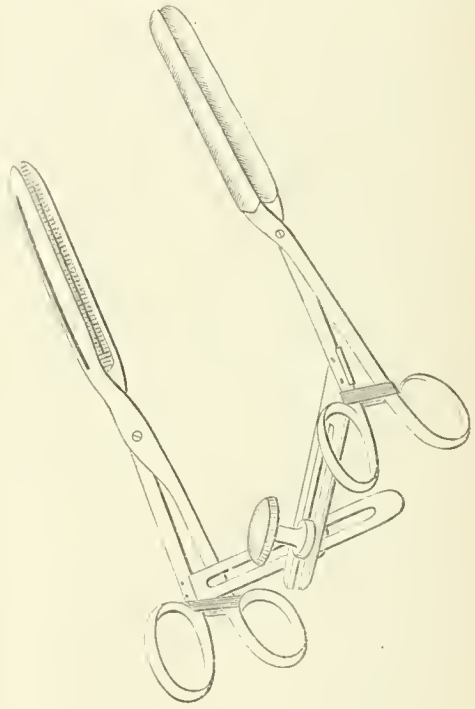
[2] In six resections, for two gangrenous herniæ, three prolapsed artificial anus, and one cicatricial stricture, there were three recoveries—Maydl: Beiträge zur Darmchirurgie, Wien. med. Zeitung, 41, 42, 43, 1885.

in the majority of cases the usual interrupted suturing of first the mucous membrane, and then the double rows of the peritoneum, known as the Czerny-Lembert suture, was resorted to, yet Schede, among others, recommends strongly the continued suture, one to the mucous membrane, and two to the serous coat (and, as he prefers, with sublimated gut), as amply sufficient, and, what is of more consequence in a prolonged operation such as this is, with the saving of one-half to three-quarters of an hour's time. This more careful closing of the opposed mucous membrane is also of service in preventing fecal extravasation between this and the muscular coat (Maydl).

With the possibility of such a mishap, after uniting the ends of the intestine, and especially in the case presented, where there is left much of an uncoverable subperitoneal surface, I would be strongly disposed to use hereafter, should an occasion offer itself, a glass or rubber drainage tube, to avert, if possible, the risk likely to arise. If it were, however, possible to keep the joined intestine after a resection outside the peritoneal cavity until union had taken place, the ideal would be fulfilled, and all risks from intestinal leakage would be obviated; but as this is difficult, from the kinking of the loop of bowel at the line of suture, and from its congestion by the constriction of the abdominal wound, Maydl has successfully carried out in his last cæcum extirpation, the suggestion[1] that the belly wound should be kept open after securing the peritoneum to the skin, and the united intestine held up to it by one or two loose sling sutures carried through the mesentery. The protrusion of intestinal coils was prevented by iodoform compresses placed in and over the wound until adhesions formed. This takes place rapidly, and both in Maydl's case and in my own the unintentional similar treatment of the wound has shown the feasibility of the plan.

The variation in the site of the incision in the abdominal wall, to revert to the *technique* of the operation in its proper order, was not great; usually, it was made in the median line. In resections of the cæcum and sigmoid flexure, Maydl and Billroth incised either parallel to Poupart's ligament, or from the umbilicus to the same ligament, or to the outside of the rectus and low down. For tumors of other parts, the mobility of the intestine permitted the use of the usual laparotomy section. Great difficulty was a few times felt from the considerable distention of the bowel, above the tumor; but in nearly all these instances it was possible, either by traction alone, or by combined depression of the abdominal walls, to bring the tumor outside the peritoneal cavity, where sometimes it could be shut from the latter by a partial temporary closure of the abdominal incision, or by carefully placed flat warm sponges or compresses of iodoform gauze. Where practicable, it has been found better first to tie off the mesocolon in small sections, and divide it from its attachments to the diseased intestine, and then to remove the portion of bowel determined on. Gussenbauer preferred to divide the intestine below and between a double ligature, and did not cut above the tumor until all the mesocolon was severed, but this plan has not been usually followed.

Whether the gut be divided prior to, or subsequent to the mesocolon, its ends have easiest, and most frequently, been secured by the various operators either by the fingers of an assistant, or by a not too tightly applied temporary ligature of silk, as in my own case, or what I judge the best so far, by tape-like strips of antiseptic gauze, such as have been employed by Billroth. Rydygier's clamp, which, it will be remembered, consists of two rods covered with rubber tubing, between which the intestine rests and is held compressed, by rubber bands encircling the ends of the rods, has been successfully used, but the clamp of Treves[1] has been abandoned by its author, in favor of Bishop's.



The latter instrument is too complicated, and of all the mechanical contrivances for the purpose, I would give the preference to that of Dr. Abbe, of this city, of which a diagram is annexed.[2] The blades of this instrument are covered with several layers of flannel, instead of rubber tubing, and thus afford a surer hold, and the compressing power at the handles is effected by thin bands of rubber. It also readily allows of a change of position, and rapid elongation and shortening. In passing the temporary ligatures, a spot in the mesocolon devoid of vessels can often be chosen, and is to be preferred.

After the removal of the diseased mass, a careful

[1] Reichel is opposed to this method of treatment, and says the sutured intestine should be fully returned, and the wound closed without a drainage tube, which is superfluous, as is also the fixation of the sutured gut.

[1] See diagrams in Treves on Intestinal Obstruction, pp. 481, 842.

[2] Manufactured by W. T. Ford, New York.

search should be made in the severed mesocolon for diseased glands, which can usually be easily removed. The question which then comes into the mind of the surgeon is, whether a reunion of the divided ends of the intestine, or an artificial anus with both ends in the wound if practicable, should be made. This point has already been touched upon in the narration of the case which forms the basis of this paper. In most of the cases in which recurrence was noticed, it took place locally, either renewing the stenosis by the involvement of the bowel itself, or producing the same through pressure from a growth in the parts adjacent. This reproduction of the neoplasm was observed in two cases in the site of the artificial anus, and admitted of partial relief by stretching, etc. The objection raised, that by waiting to perform a subsequent resection of the intestine for the false anus created by the first operation, an additional risk is run, is not so weighty as it at first seems, since the investigation of Reichel shows that in thirty-seven resections of the intestine for the relief of an artificial anus, only two deaths resulted. The fact that in the eight cases where an anus was thus produced, death resulted in five, should not be interpreted that this plan of action is necessarily a more fatal one than is resection of the bowel, for not only are the cases too few to dogmatize upon, but also in more than half of these instances the anus was made because the parts removed had been so extensive as to render impossible the union of the divided ends of the bowel, and the operation itself thereby rendered more hazardous.

The conclusion already stated is, therefore reiterated, that in an intestinal resection for a malignant neoplasm, it is wisest to establish an artificial anus.

Only a reference need be made in this connection to the lumbar incision for the removal of intestinal growths. This has only once been resorted to, with fatal result, by Lammiman, who, after taking away the tumor, brought out the lower end of the colon in the wound after placing a ligature around the lower end of the bowel, and dropped it in the abdominal cavity. Bryant's case, which preceded this, recovered. It was the result of the accidental opening of the colon in an ordinary colotomy immediately below the seat of the malignant stricture. This was detected and drawn out of the belly, and four inches cut off, and the two ends of the bowel fastened in the lumbar wound. I see but little to recommend in this procedure, as its scope must be confined to a very limited topographical region, though it has the endorsement of so excellent an authority as Treves.

A much more important consideration after all, is whether such hazardous operations are justified for the removal of malignant growths. In common with other surgeons, I feel the discouragement that attends endeavors to give relief, or to prolong life, and most remotely, to effect a cure in such conditions. The operation with which this more recent extirpation of abdominal growths has been compared, is lumbar colotomy, which is, however, merely a palliative one, and, according to the rich experience of Allingham, not effectual in prolonging life. Its risks, too, are, I think, made light of.

The large statistics of Erkelen,[1] embracing 262 cases of colotomy for all causes gave a mortality of 58.4 per cent., and for 110 cases of carcinoma 37.7 per cent. of deaths. The cases of recovery after resection of the intestine for a neoplasm, are too few to place with those of colotomy, and can only be fairly considered with the first cases of the allied operations of extirpation of the rectum and of the uterus by the vagina for cancer, both of which have now come, by increased experience, to have an acknowledged standing in surgery, and a diminished mortality from improved methods of operation, and judicious care in the selection of cases. To me, I confess, the fact that one can hope to have room enough in the intestine and mesentery to get wide of the tumor, is an advantage not possessed by any of the abdominal operations for malignant growths, except in ovariotomy, and in the belief that the dangers that come immediately from the operation can be more and more satisfactorily coped with, I venture to commend, in this brief paper, the resection of such intestinal tumors with, as a rule, the establishment of an artificial anus.

But a careful diagnosis must be made under ether to determine the mobility and freedom from adhesions of the growth, and the absence of pronounced glandular involvement. The interrogation of the organs, as, for example, the liver, in which secondary deposits are most likely to occur, should be strict, not only by palpation and percussion, but also by the newer corroborative chemical tests of urea diminution, and peptone increase, etc.

The operation should generally be begun as an exploratory one, with Tait's statement in mind, that it is harder to know when to desist than to go on. If the tumor is an unfit one for extirpation, an ordinary artificial anus can be made either in the exploration wound, or in the groin. This has been done, after Littré's plan, for carcinoma, in 23 cases, and has given a mortality of 39 per cent.[2]

I have appended a table comprising the collected cases. These are interesting in several points other than those touched on in the foregoing remarks. In respect to one—the recurrence, a few words may be added: in 10 of these, where the fact of recurrence is noted, it took place in 3 cases (Czerny, Kraussold, Billroth) in less than one year; in 4 others (Reybard, Maydl, Volkmann, Bryant) between one and two years; and in one case (Fischer's) over two years, and in Gussenbauer-Martini's case the patient was free from disease at the date of our last report, four years after the operation. In Schede's, where a laparotomy was unsuccessfully done for intestinal obstruction, nine months after the resection and reunion of the intestine for cancer no trace of the recurrence of the neoplasm was found, and the interesting point was also developed that the turning inward of bowel by the Czerny-Lembert sutures had not given rise to any permanent projection into the lumen of the gut, only a simple linear cicatrix being perceived.

[1] Archiv f. klin. Med., Bd. xxiii. Heft 1.
[2] Erkelen, op. cit.

TABLE OF RESECTIONS OF THE INTESTINE FOR MALIGNANT GROWTHS.

No.	Operator, and date.	Disease.	Length removed.	Treatment of resected intestine.	Situation, etc., of abdominal wound.	Result.	Where reported.
1	Reybard,[1] 1843.	Carcinoma of sigmoid flexure.	3 inches.	Sutured and returned.	6 inches long, above crest of ilium. Wound united by 3 sutures.	Recovery; 10th day movements from bowels. Recurrence 6 months later, and death 1 year after operation.	Bull. Acad. de Méd., t. ix. p. 1033.
2	Thiersch,[2] 1875.	Carcinoma; acute obstruction	Not stated.	Lembert's suture, intestine united and returned.	Linea alba.	Died in 12 hours, septic peritonitis.	Deutsche Gesellsch. f. Chir., 1878, Bd. vii. S. 127.
3	Gussenbauer, Dec. 6, 1877. Man.	Carcinoma of colon; adherent also to small intestine; acute obstruction.	3 inches.	Ends united by Lembert and Gussenbauer suture; wound accidentally made in small intestine closed by 3 sutures.	Linea alba, and a second one transverse to this.	Died 15 hours after operation, from collapse.	Archiv f. klin. Chirurg., 1878, Bd. xxiii. S. 233.
4	Schede.	Carcinoma of descending colon.	None removed; disease found too extensive; intestine cut off	Ends sutured to wound as they could not be approximated.	Over tumor on left side.	Died in 24 hours from inanition; no peritonitis.	Deutsche Gesellsch. f. Chir., 1878, S 126.
5	Billroth 1879. Woman, 60.	Carcinoma of descending colon at transverse flexure.	Not stated.	Enormous distention of bowels; artificial anus made, as it was impossible to unite ends, why not stated. Lower end closed and left in. To replace intestines incisions made to let out flatus, which were afterward sewn up.	.....	Died in 24 hours.	Hauer, Zeitsch. f. Heilkunde, 1884, S. 83.
6	Gussenbauer and Martini, Nov. 9, 1879.	Carcinoma of sigmoid flexure and mesocolon.	4 inches.	Lower end turned in on itself; sutured and returned to pelvis Upper end made an artificial anus in superior end of wound.	Over tumor in left side of abdomen.	Recovered; in 2 mos. resumed work. Reported by Schede in 1883 as still free from disease.	Petit, Bull. Gén. de Thérap., t. ciii. 486, from Zeitschr. für Heilkunde, Bd. i. S. 208.
7	Guyon, Nov. 23, 1879.	Cylindrical epithelioma at juncture sigmoid flexure and rectum.	2½ inches.	Ends united by 15 sutures, and bowel replaced.	Linea alba.	Movements followed immediately; died in 3½ hours.	Petit, Bull. Gén. de Thérap., t. ciii. 537, from Peyrot, De l'intervention chirurgicale dans les obstructions de l'intestines
8	Baum, Jan. 13, 1879.	Carcinoma of ascending colon. Fecal fistula made 8 weeks before operat'n above Poupart's lig. on right side in small intestine, to allow escape of gas, which prevented use of percussion and palpation.	3 inches.	End of upper intestine being longer than that of the lower end, the former was made smaller after Billroth and Czerny's method, a wedge-shaped piece directed outward being made by 6 stitches. Ends then united with carbolized silk, Gussenbauer's sutures. Gut returned.	Incision 3 inches long over tumor, 1 inch below ribs, 3 inches to right of median line. Supplementary incision 2 inches long from middle of first, running to right. Wound united with silk.	5th day soft movement died 9th day; no peritonitis: sutures gave way.	Centralblatt für Chirurg., 1878, vol. vi. p. 169.
9	Kraussold.	Carcinoma sigmoid flexure.	Not stated.	Sutured.	.....	Recovered; died 6 months later of recurrence in mesentery.	Sammlung klin. Vorträge, 191, S 1724.
10	Kraussold, April, 1879.	Carcinoma ileocæcal valve, cæcum, and verniform process.	.....	Joined by Lembert's sutures, silk.	As for ligation right external iliac.	Died of shock in 2 hours.	Centralblatt für Chirurg., 1881, vol. viii. p 186.

[1] The report of this case being made to the Academy of Medicine, it was referred to a committee made up of Blondin, A. Bérard, Jobert de Lamballe, to whom Reybard detailed his experiments upon dogs, previous to his operation. Seven dogs were operated upon by the commission, four surviving; but the committee sent in a report against the operative innovation of Reybard.

[2] In Thiersch's resection about a quart of fecal matter came out of distal end. When this appeared empty, he began to unite ends with Lembert's suture, and before he had finished a peristaltic movement forced a large amount of feces out, and a part entered abdominal cavity. He then made an artificial anus above the operation wound, allowing free exit to the feces, after which he finished suturing gut.

TABLE.—*Continued.*

No.	Operator, and date.	Disease.	Length removed.	Treatment of resected intestine.	Situation, etc., of abdominal wound	Result.	Where reported.
11	Czerny, 1880.	Carcinoma of transverse colon and sigmoid flexure.	3 inches of sigmoid flexure, and 4½ ins. of transverse colon.	Cut ends of sigmoid united by 33 sutures. colon by 26.	4⅓ inches long over tumor in left hypochondrium. United by deep and superficial sutures; drainage.	Recovered; movement 10th day after injection. Abdominal wound opened, and healed in 4 mos. but recurrence began and patient died at end 7 mos. 11 days.	Petit, from Berl. klin. Wochenschrift, 1880, 638.
12	Credé, 1880. Incomplete operation.	Carcinoma of intestine.	.....	Only a portion of tumor removed for microscopic examination; it was found to have many foci.	.....	Recovered.	Archiv f. klin. Chir., Bd. xx. S. 293.
13	Wittelshoefer (Billroth), July 1, 1880.	Carcinoma of sigmoid flexure.	9 inches.	Lower turned in and sutured, upper sutured to upper end of wound.	To left of median line with convexity extended. Sutured from below up to artificial anus.	Died in 14 hrs. from general peritonitis and endocarditis.	Wiener med. Woch., 1881, S. 185.
14	Fischer, Feb. 24, 1881.	Carcinoma of descending colon.	Nearly 3 inches.	United by Czerny's suture, and then fixed by a suture in lower end of abdominal wound.	Linea alba, upper ¾ closed, lower ¼ left open.	Movement 1 hr. after operation from rectum; 8th day feces came from abdominal wound, and fecal fistula formed here. Patient discharged on Oct. 19th (8 mos. after operation) cured, with no sinus. Since dead. (Schede, 1883)[1]	Centralblatt für Chirur., 1881, Bd. viii. S. 794.
15	Bryant, Sept. 10, 1881.	Alveolar carcinoma of descending colon	About 4 inches.	Upper end made into artificial anus; lower closed, and sewed to lower end of wound.	For left lumbar colotomy; stricture found above wound thus made, and pulled down, excised; lower part closed; upper made into art. anus.	Recovery; movements during operation. Aug. '82, doing well; there had appeared recurrence at opening 1 year later, which demanded stretching.	Medico-Chir. Trans., vol. lxv. p. 131.
16	Nicolaysen, March 1, 1881 Woman, 49.	Carcinoma, sigmoid flexure prolapsed beyond anus.	.....	While protruding beyond anus it was removed with its mesentery.	Removed per rectum.	Recovery; 2½ mos. later reported well.	Nord. Med. Ark., iv. No. 13. 1882, Centralb. f. Chir., No. 36, 1882.
17	Von Wahl, 1882? Woman, 26.	Colon adherent to cancer of ovary and infiltrated with neoplasm.	4 inches.	Colon sutured together, Gussenbauer, Lembert; clamp to hold end intestine.	....	Recovery; though recurrence took place in a month.	London Med. Record, Apr. 15, 1883.
18	Bergmann, 1882. Man, 40-50.	Carcinoma cæcum.	?	Cæcum and small intestine sutured together.	Median incision.	?	Oral communication from Dr. E. M. Culver, who witnessed the operation.
19	Billroth, Aug. 20, 1881. Man, 56.	Carcinoma cæcum.	Cæcum and part of ileum.	Colon reduced in size by 11 "occlusive" sutures, and then united to small intestine by 11 Wölfler and 19 Lembert sutures.	From umbilicus to middle of Poupart's ligament.	6th day stercoraceous vomiting; wound opened; cause not found; artific'l anus then made. Died; no autopsy.	Hauer Zeitschr. f. Heilkunde, 1884, S. 83.
20	Billroth, Oct. 18, 1881. Woman, 29.	Carcinoma both ovaries, involving intestine and bladder, both of which were resected.	5 inches.	Ends united by 5 Wölfler and 9 Lembert sutures and replaced; gut held by assistants.	Median line.	Recovered; bowels moved on 10th day.	" " "
21	Marshall, April 15, 1882.	Carcinoma descending colon	3½ ins.	Lower end cleaned with sol. zinc chloride, and sutured to skin wound by silk sutures through serous and muscular layers, and gut sutures through all 3 coats; lower end ligated with gut and fastened in wound.	Wound in median line closed with silk; lateral wound made artificial anus; first incision made in median line just below umbilicus to pubes; supplementary incision 3 inches long, parallel to last rib of left side, 1½ in. above crest of ilium.	Movement during operation. Died 3d day, diffuse suppuration.	Lancet, 1882, p. 721.

[1] Reichel, in Deutsche Zeitschrift für Chirurgie, No. 19, 1884, p. 251, reports that this patient presented herself at the clinic in Breslau, June 5, 1882, with recurrence at site of former fecal fistula. In removing this two coils of large intestine were found adherent to growth and to abdominal wall. It was thought unwise to resect these intestines, and after removing the recurrence in the abdominal wall, the wound was closed and united primarily. During October, November, and December, fecal fistulæ and abscess formed between umbilicus and symphysis, and patient died January 9, 1883.

TABLE.—*Concluded.*

No.	Operator, and date.	Disease.	Length removed	Treatment of resected intestine	Situation, etc., of abdominal wound.	Result.	Where reported.
22	Volkmann.	Carcinoma upper part sigmoid flexure.	4 inches.	Artificial anus made; both ends brought into wound.	?	Recovery; reported in 1884 as dead from a recurrence of cancer 1½ year after operation.	Centralblatt f. Chir., No. 10, 1883
23	Maydl, April 1. 1883. Man, 54.	Cancer cæcum.	Cæcum and small intestine removed, 7 ins. in all.	Artificial anus made, and 6 months later closed by reuniting intestine after a further resection of 2 inches.	Outside of rectus; drainage after resection of fecal fistula, which slowly contracted, but did not heal.	Recovered, though since dead from recurrence 1 yr. later.	Wiener med. Presse, April, 1883.
24	Czerny.	Carcinoma cæcum and part of duodenum.	.....	.....	.....	Died.	Centralblatt f. Chir., No. 30, 1883.
25	Schede, June, 1883. Man, 50.	Carcinoma of small intestine attached to abdominal walls, tumor size of man's fist.	8 inches, mesenteric glands also removed.	Temporary ligature, ends united by single mucous and double row of serous sutures, all continuous and of sublimated catgut.	Median laparotomy.	Recovered; movement from 1st day; 9 mos. later intestinal obstruction from a band; laparotomy; death; no recurrence found.	Beilage zum Centralblatt f. Chirurg., 1883, p. 66.
26	Partsch, July 14, 1883.	Carcinoma of small intestine	3½ ins.	Sutured with silk passing through serous and muscular coats to middle of wound; ligature left about lower end of gut when stitched to wound.	From umbilicus to symphysis closed, except for 2 inches in centre, where peritoneum was sutured to edge of wound, and both ends of gut were secured.	During operat'n movements carefully kept from abdominal cavity; doing well on 4th day, except delirium, in which patient jumped out of bed and tried to escape; death 5th day, exhaustion.	Centralblatt für Chirurg., 1883, No. 52, S. 833.
27	Lammiman, Feb. 14, 1883.	Scirrhous carcinoma of descending colon	Not stated.	Upper end sutured to wound; lower end ligated with carbolized silk; gut returned to cavity.	As for left lumbar colotomy; closed to artificial anus.	Died in 48 hours from exhaustion; movement in a few hours.	Lancet, 1883, Aug. 4, p. 182.
28	Treves.	Cylindrical epithelioma of descending colon.	Not stated	Ends united by 25 Lembert sutures, not including serous membranes; uses Chinese twist silk; divides mesentery from the gut.	Median line.	Died in 12 hours without stool, from shock and exhaustion.	Med. Chir. Tr., 1883, vol. lxvi. p. 55.
29	Billroth, Jan. 28, 1883. Woman, 56.	Carcinoma of transverse colon.	6 inches.	9 inner and 27 Lembert sutures; tumor adherent to anterior abdominal wall.	Drain used.	7th, fecal fistula developed, which closed on 14th day; recovered; reported herself well 10 months later.	Hauer. Zeitschr. f. Heilkunde, 1883, S. 83.
30	Billroth, Mar. 23, 1884. Man, 55.	Carcinoma of cæcum size of apple.	2¾ ins. of colon, 1½ ins small intestine excised, after tying intestine tempor'rily with broad strips iodoform gauze	Ends joined with 22 sutures.	6 inches long, just outside right linea alba; drain used for 5days.	Recovered; 6th day bowels moved.	" " "
31	Sydney Jones, May 23, 1884.	Scirrhous carcinoma of ascending and transverse colon.	Not stated	14 silk sutures through whole thickness of gut joining ends; "others" through serous coat alone, one fastening serous coat to abdom. wall.	Over tumor 5 inches; vertical direction; closed, except in centre, here packed with gauze (iodoform).	Died 3d dy. No movement; exhaustion; no peritonitis, but "dirty looking pus had infiltrated tissues" at juncture of mesentery and gut.	Lancet, Jan. 10, 1885. p. 60.
32	Hofmokl, April, 1885. Woman, 24.	Malignant adenosarcoma of cæcum.	9½ ins. ends secured with 3 rows sutures: drained	Curved 5 inches from rectus, exposing tumor.	.....	Recovery; movements 5th day.	Anzeige der k. k. Gesellschaft der Aertze in Wien, May 1, 1885.
33	Lange, 1885.	Carcinoma of flexure and ascending colon.	4 inches.	Ends united with difficulty; duodenum wounded and sewn up.	.....	Died 2d day.	Oral communication in discussion on this paper.
34	Lange, 1885. Woman, 32.	Sarcoma of transverse colon, with sarcoma of both ovaries.	6 inches.	Ends sutured by Czerny-Lembert method.	Median.	Died 9th day from perforative peritonitis; diarrhœa persisting from time of operation.	" " "
35	Weir, Oct. 22, 1885. Man, 54.	Carcinoma of sigmoid flexure, lower end.	5½ ins	Temporary ligatures; artificial anus made; rectal end closed.	4 inches; median.	Recovery; left hospital Jan. 3, 1886, gaining flesh and strength; recurrence probable	This paper.

ANOMALOUS LOBATION OF THE HUMAN LUNG.

BY D. S. LAMB, A.M., M.D.
OF WASHINGTON, D. C.

AN article by Dr. Wm. A. Edwards, entitled "An Anomalous Human Lung, having Four Lobes on the Right Side," published in *The American Journal of the Medical Sciences* for July, 1885, has led me to look over my record of necroscopies; and I note the following anomalies observed in the lobation of the lungs:

January 10, 1866: Man, aged 25, colored. Left lung composed of three distinct lobes.

April 13, 1866: Man, aged 26, colored. Right lung composed of but two lobes.

May 5, 1866: Girl, aged 10, colored. Left lung composed of three lobes, distinctly marked.

June 18, 1867: Man, aged 45, white. Right lung contained an imperfectly formed middle lobe.

May 1, 1874: Man, aged 64, white. Right lung contained an upper and lower lobe, and two irregularly formed middle lobes.

November 6, 1881: Girl, aged 15, mulatto. Several congenital fissures of left lung

November 20, 1881: Man, aged about 40, white. Left lung contained three lobes.

March 29, 1882: Woman, aged 25, mulatto. Right lung; rudimentary additional lobe derived from lower lobe.

April 3, 1882: Man, aged 48, mulatto. Right lung contains but two lobes, and a white line marking out the third.

November 5, 1882: Boy, aged 19, mulatto. Right lung; middle lobe imperfectly separated from lower by line of thick connective tissue.

October 25, 1883: Man, aged 40, colored. Left lung; subdivision into lobes incomplete.

January 26, 1884: Woman, aged 25, mulatto. Right lung consisted of two lobes.

November 5, 1885: Man, aged 75, negro. Right lung; four lobes, two middle ones.

An analysis of these thirteen cases shows that the anomalies were found in nine males and four females; ten colored and three white. In 100 consecutive examinations there were about 60 males to 40 females; and 70 colored to 30 white. The anomalies were, therefore, relatively more frequent in the male sex and colored race. The number, however, is too small to warrant generalization; and besides, some of the bodies were as much *white* as *black*.

In five cases the right lung consisted of two lobes. In two of these the middle lobe was marked by a *line* of connective tissue, uniting it with the lower lobe; and in a third the condition may have been similar, the note made being that the middle lobe was imperfectly formed.

In three cases the right lung presented four lobes. In two of these there were two middle lobes. I recollect that in one the two middle lobes were side by side. In the third case the additional lobe was derived from the lower lobe.

In three cases the left lung showed three distinct lobes.

In one the left lung presented multiple fissures.

In one, the left lung, the subdivision into lobes was incomplete.

The record does not state, and I do not now remember, the relation of the primary bronchi or bloodvessels to the number of lobes. I have, however, attached less importance to an inquiry in this direction, because in so many of the lower animals there is, apparently, no law bearing on this point, at least as to the bronchi. As an instance, the dolphin, Delphinus Delphis, shows two primary bronchi going to the right lung, which is not lobed at all. Aeby, in his *Der Bronchialbaum*, etc., Leipzig, 1880, Tafel 2, Fig. 3, shows this well; and a specimen of the same came under my notice only a few weeks since.

ARMY MEDICAL MUSEUM, WASHINGTON, D. C.

MEDICAL PROGRESS.

LOCAL SEDATIVE FOR TEETHING OF INFANCY.—BOUCHUT recommends the following formula for use in painful dentition:

R.—Cocaine muriate	1 part.
Sodium borate	1 "
Syrup of marshmallows	20 parts.
Syrup of poppies	10 " —M.

S. Gently rub the gums with the syrup four times daily.—*L'Union Médicale*, Jan. 9, 1886.

A NEW SPIRILLUM.—At the last meeting of the Medical and Physical Society of Bombay, held September 4, the President, Dr. H. V. Carter, showed specimens of a new spirillum (or spirochæta) which he had found in the blood of an Indian rat. The organism is minute, yet of characteristic aspect and activity; so far as yet learned, its occurrence in the blood does not produce recurring pyrexia or other peculiar symptom.—*Indian Medical Gazette*, December, 1885.

ANTHRAX VACCINATION IN RUSSIA, hitherto unsuccessful, has at last produced satisfactory results. ZENKOWSKI, of Charkow, has vaccinated over 1300 sheep, with a resultant immunity which is apparently complete. In the presence of a number of Government and University officials, thirty of these vaccinated sheep were inoculated with a strong anthrax culture. The temperature rose nearly two degrees, to regain the normal on the fourth day, with entire recovery. In the control experiments, out of ten similarly treated unvaccinated sheep, eight died in from twenty to forty hours, and the ninth in six days.—*Centralb. f. d. med. Wiss.*, Jan. 2, 1886.

TUBERCLE BACILLI IN THE PUS OF OTORRHŒA.—NATHAN has examined the pus of forty cases of otorrhœa placed at his disposal by Prof. Bezold. In twelve of these he found bacilli of tuberculosis. Amongst forty-six preparations these were demonstrable in forty. Other traces of pulmonary tuberculosis corroborated these results in eight of the twelve cases. Physical examination revealed no pulmonary affection in the ninth case, that of a scrofulous child. The remaining three were subjects of caries; one suffered from a sequestrum in the mastoid, and caries of the ossicles existed in the other two cases. The other twenty cases, in which an examination revealed no bacilli, embraced various diseases; in three there was disease of the adjacent

cells, and perforation of Shrapnell's membrane. The presence of bacilli in the aural discharge of those patients also presenting pronounced pulmonary complications, places beyond doubt the phthisical nature of the middle ear trouble. It further exerts a determining influence upon the prognosis of these cases.—*Archives of Otology*, 1885, No. 3.

ALBUMINURIA CONSEQUENT UPON LESIONS OF THE SKIN.—AUGAGNEUR records several cases confirmatory of the well-known assumption that renal inflammation may be induced by suppurative lesions of the skin. The condition of the kidney is determined by the absorption of bacteria from the cutaneous lesion, or, as suggested by Fürbinger, by an absorption of the products of the retrograde metamorphosis of albumen induced by bacteria. Augagneur concludes, from his observations, that such renal inflammation usually subsides with the healing of the cutaneous lesions, and that its prophylaxis is best effected by antiseptic treatment of the skin trouble.—*Centralbl. f. klin. Med.*, Jan. 16, 1886.

THE PHARMACEUTICAL AND THERAPEUTIC USES OF ALGIN.—MR. WATSON SMITH calls the attention of pharmacists and physicians to a new product, *algin*, discovered by Stanford. It is a residual product of the wet way of obtaining iodine from certain marine algæ, being a nitrogenous principle, closely resembling albumen except in not being coagulated by heat. It forms perfectly definite *alginates* with metals. The alkaline and earthy-alkaline alginates are soluble, but the others are insoluble. The double alginates are easy of preparation, and almost all of them are soluble. Besides possessing many curious chemical properties, giving promise of extensive applicability in pharmaceutical and other processes, algin has a notable alimentary value, and may be advantageously substituted for gum-arabic in the preparation of a great number of dietetic and medicinal products.—*Physician and Surgeon*, January, 1886.

NEW PURGATIVES.—At a recent meeting of the Academie de Médecine, DR. DESNOS presented observations on baptisin, sanguinarin, juglandin, and phytolaccin. The last named he regarded as of especial interest, as it was found to be a reliable purgative in doses of from one and a half to three grains. It also possesses cholagogue properties. Sanguinarin was found to be unreliable, and its rejection was advised.—*Les Nouveaux Remèdes*, Jan. 1, 1886.

IRRIGATIONS OF ETHER IN THE VOMITING OF PREGNANCY.—In the *St. Louis Courier* we read of a young woman, primipara, of feeble constitution, who had vomited from the second month of pregnancy. At the end of the fifth month the vomiting became so violent as to threaten death, there being syncope, absolute prostration of power, noises in the ears, chills, cold, and profuse sweats, frequent and filiform pulse, etc. In their turn antispasmodics had been used (ether, valerian, musk), then opiates, carbonated and iced drinks, iodine externally and internally, blisters upon the epigastrium, hypodermatic injections of morphia—in fact, every known means of arresting vomiting—all without avail. It was suggested to try irrigations of ether upon the epigastrium. The effect was instantaneous; a single irrigation sufficed to cut short the vomiting. The patient drew a few long breaths, and said she was cured and felt perfectly well. The vomiting returned twice, subsequently, and each time ether irrigations arrested the trouble.—*Kansas City Medical Index*, Jan. 1886.

RAYNAUD'S DISEASE.—*The Journal of Nervous and Mental Disease* for Jan. 1886, gives the following *résumé* of four cases of Raynaud's disease. Dr. Colcott Fox has reported two cases of this disease to the Clinical Society of London. A woman, æt. forty-one, of extremely nervous temperament, dated her disorder ten years back, but she had probably had slight attacks some years previously. In the earlier stages all her fingers continually went "like white wax." This condition of recurrent local syncope gradually gave place to local asphyxia, and the feet became involved. The fingers gradually lapsed into a state of chronic asphyxia, which was intensified by frequent attacks of more severity, often leading to "blood-blisters" and ulceration. The nutrition of the phalanges suffered greatly, her hands being crippled, the fingers fusiform in shape, livid, shiny, and withered, the nails variously distorted, and the end phalanges much atrophied and almost immovable. The nose and ears become affected to some extent on exposure. Cold and nerve shocks are exciting influences. The second case, that of a male, æt. fifty-one, like one of Raynaud's cases, had diabetes. His hands were deformed, and he had suffered for several years with "dead fingers." He sought Dr. Fox's advice for symmetrical gangrenous patches on the skin, which recurred, and later for an attack of asphyxia of one great toe and lower third of the inner side of the leg, and then it was found that the other toe had been affected even more severely. On another occasion blood-blisters had formed beneath the ends of his toes.

Dr. Frank R. Fry, of St. Louis, also reports two cases. 1. A female, æt. thirty-two, had been under observation far two and a half years, having suffered from extreme general anæmia—or spanæmia—also uræmia, metrorrhagia, and great debility. Her heart was weak and irritable. She gave a syphilitic history. The symptom indicative of Raynaud's disease was the apparently bloodless condition of her hands. From the tips of the fingers to the wrists they had a bluish-white color, and the feel could only be described as cadaveric. She complained of an almost constant aching in them. The feet were in a somewhat similar condition, ischæmia not being so extensive as in the hands. This attack lasted for a week; later she improved, the attacks becoming less severe and less frequent. 2. Male, æt. seventeen; when first seen all the fingers of both hands back to the metacarpo-phalangeal joint were in an asphyxiated condition, apparently bloodless, cold, and stiff. He moved and used his hands in a clumsy manner as if they were stiff from cold. Sensibility was much obtunded, though pain accompanied and followed this condition. His attacks had commenced about one year previous. They occur from one to three times a day, and last from fifteen minutes to an hour. Nothing abnormal was found, except a slight irregularity and feebleness of the heart.

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SATURDAY, FEBRUARY 13, 1886.

EXPERIMENTAL ENDOCARDITIS.

IN THE MEDICAL NEWS of October 24th, we referred to the observations of Orth, who was able to induce acute endocarditis by lacerating the valves and subsequently injecting microörganisms into the blood. An ulcerative process was in this way set up in the torn segments which could not be produced by the laceration alone or by simply injecting a fluid containing microörganisms.

RIBBERT, of Bonn, has published in *Fortschritte der Medicin*, No. 1, 1886, an interesting account of a series of experiments on myo- and endocarditis, both of which conditions he has been able to induce by injecting the staphylococcus into the blood of rabbits without any previous laceration of the valves. Cultures on potato were used for injection, and it was found that if the material was too finely divided or if too small an amount was injected, the effect was not so likely to be produced as when coarser particles were employed. The quantity introduced had an important influence. Less than a sixth part of a Pravaz syringe never produced endocarditis, though the animal would die in from two to three days. Half a syringeful of the coarser emulsion was invariably followed by adhesion and growth of the micrococci on the mitral and tricuspid segments, most frequently on the former. The aortic and pulmonary valves were never affected. The colonies formed either a continuous layer or were in scattered groups one or two millimetres in diameter. The free borders of the valves and contiguous parts of the tendinous cords were the regions most often affected. The histological examination of the valves showed very clearly the various stages in the process of destruction of the tissue and confirmed the views of Klebs and others that the micrococci first settle on the endothelium and penetrate in this way, and not from within, by embolism, as Köster supposes. The earliest change seems to be superficial necrosis, caused by the direct action of the microörganisms, to which succeeds rapidly an inflammatory reaction indicated by the presence of numerous leucocytes. The micrococci penetrate into the tissue and cause widespread necrotic destruction. Fibrin separates upon the masses, and we have in this way produced the characteristic fungoid vegetations of ulcerative endocarditis.

Cultures proved that the microörganism was the golden staphylococcus which has been shown by several observers to be concerned in certain cases of ulcerative endocarditis in man. To complete the evidence, we now require carefully prepared cultures from a case in man and a similar series of experiments to those undertaken by Ribbert. Doubtless such will be forthcoming at an early date, and will conclude, so far as possible, the experimental evidence of the mycotic character of malignant endocarditis. A further series of observations will be necessary to determine whether there are not, as has been suggested, various microörganisms capable of inducing endocarditis.

COLECTOMY FOR CARCINOMA.

IN the current number of THE MEDICAL NEWS, DR. WEIR records a case of successful resection of the sigmoid flexure of the colon, the patient being alive ten weeks and a half after the performance of the operation, with a probability of recurrence of the malignant disease. As the safe approximation of the divided ends of the bowel would have been a matter of great difficulty, an artificial anus was established by suturing the upper end of the gut to the superior angle of the abdominal wound.

In connection with his case, Dr. Weir tabulates thirty-five examples of excision of a portion of the intestine for carcinoma, in four of which the small intestine was involved, and in one of which the result of the operation is unknown. Excluding those cases, and adding two additional instances of which we have notes—the transverse colon being affected in one, and the sigmoid flexure in the other—three are on record at least thirty-two examples of colectomy for carcinoma. With this experience before us, the questions which naturally arise are, first, whether the operation should be undertaken at all, and, secondly, whether it is better, after the resection of the gut, to suture and return the ends, or establish an artificial anus.

That the operation is a most serious one is shown by the direct mortality of fifty per cent., sixteen of the thirty-two patients having died, and an equal number having recovered. Of the sixteen cases of

recovery, six are reported a few weeks after the performance of the operation, thereby leaving ten cases in which the final result is known. In seven of these the patients died of recurrence in from six to twenty-four months, or in eight months on an average; two were living with recurrence; and one remained well for four years. Hence, fifty per cent. of the patients die from the operation; the disease recurs in ninety per cent.; and a cure is effected in less than four per cent. In view of these results, the operation has certainly proved to be a most unpromising one.

Should, however, an operation be decided upon, the disposal of the divided ends of the bowel is a matter of serious consideration. Of twenty-four cases in which the gut was sutured and returned, eleven, or 46.8 per cent., perished; while in eight in which an artificial anus was formed, five, or 62.5 per cent. died. The evidence seems, therefore, to be in favor of colectomy and enterorrhaphy, but, as Weir points out, in one-half of the cases of the establishment of an artificial anus, that procedure was resorted to because so much of the bowel had been removed as to render it impossible to approximate the divided ends, through which the operation was rendered more hazardous. Suturing and dropping the gut is undoubtedly the more tedious procedure, and requires greater attention to details, and, in addition, escape of the intestinal contents into the peritoneal cavity is very liable to occur unless the stitches are inserted with the greatest care. For these reasons, we agree with Weir that it is wiser to establish an artificial anus.

DREAMS.

WHEN Shakespeare put into the mouth of Prospero, "We are such stuff as dreams are made of," he suggested no explanation of dreaming. He was simply teaching the vanity of earthly things; they were as unsubstantial, as perishing, as evanescent as are the visions that come to mortals in the night, when tired nature is receiving rest and restoration in sleep.

Few there are who do not have the companionship of dreams, or at least their occasional visits, from childhood to extreme old age; even the infant sometimes dreams, at least we have as certain proof of this fact independently of what the poets have told us, as we have of the dreaming of animals, which has been so strongly presented by the late DR. LINDSAY in his interesting work upon *Mind in the Lower Animals*. Prominent among the animals which dream he placed the dog, a truth that has been generally received from the time of Lucretius and of Seneca to that of Tennyson, whose line, "Like a dog he hunts in dreams," is familiar to all, though really the thought seems borrowed from the words of Ennius, *Et canis in somnis leporis vestigia latrat*. The starving have dreamt of costly and abundant viands, the poor have for a brief time revelled in exhaustless wealth, the neglected maiden may be the heroine of a more marvellous history than that of Cinderella, and the humble and lowly have become the possessors of thrones and kingdoms. Strange and magnificent processions may come to the closed eyes, and scenes apparently unconnected and often incongruous, but beautiful, may move before them like a swift panorama; the laws of time and space are set aside—Huber, the great naturalist, at sixty-six years of age, blind since he was eighteen, dreamt of seeing the sunshine, and once again with his own eyes, and not with those of another, beheld the beauty of nature as he did in boyhood. Once more those in distant lands return, and talk with us face to face; yea, even the dead come back, we again hear loved voices that have been silent in the grave for years, and behold loved forms that have long since yielded to nature's inevitable law, "dust to dust, ashes to ashes."

Dreams of terror and pain also come, of a peril which yawns for us on sea or land, of a wave that is just about to overwhelm us, or of falling from some dizzy height to a fathomless abyss; of being involuntarily driven to the commission of crime, or impetuously fleeing from it, not knowing where we shall go; or again, of a deadly danger when the tongue is speechless to call for help, and the hand cannot be raised for defence, and the feet refuse to carry us away; we suddenly waken in our agony and rejoice to find we were only dreaming, but will not trust ourselves to sleep again lest the terrors should return.

The subject of dreams is thus an interesting one to all. In its consideration we enter into the borderland lying between science and mystery, if not between matter and spirit, a land, however, into which science slowly but surely enters, shedding new light, though possibly she may never be able to solve all mysteries.

Nor is the subject of dreams without special interest to the physician, for they may be caused by disorder of important functions, or be the forerunners of grave disease; the hallucinations of dreams, usually dissipated upon waking, may become fixed in the mind, and lead to grave crime or confirmed insanity. Moreover, the physician who would know man not merely physically but psychically, must study not alone the psychology of waking, but also that of sleeping hours.

Laying aside those instances recorded in sacred history where dreams were Divine revelations of duty or prophecies of future events, because not belonging to general human experience, remote from our day, and not on the plane of human investigation, some dreams at least were regarded by the wisest of ancient philosophers as supernatural in origin. Socrates, for

example, if we can trust the word of Plato, had this faith, and his action was in certain cases determined by the revelations made in dreams, as one may readily see by referring to the *Phædo* and the *Crito*. Yet Plato has very clearly shown, in a passage in the *Republic*, that evil dreams may result from a disordered condition of the body: they come, he says, "when the wild beast in our nature, gorged with meat or drink, starts up and leaps about, and seeks to go and satisfy his desires." And, again, he says, "There is a latent wild beast nature, which peers out in sleep." Burton, in the *Anatomy of Melancholy*, while referring to "imaginary dreams, which are of various kinds, natural, divine, demoniacal, etc.," also states that they vary "according to humors, diet, action, objects, etc." Thus, while the supernatural element was recognized in some dreams by both Socrates and Burton, the latter, as well as Plato, asserted that other dreams were dependent upon physical conditions of the dreamer.

One striking fact in regard to dreams is their complete independence of the will. That this independence should exist in the evolution of dreams is, of course, not at all surprising, but that it should also exist as to their genesis does seem somewhat inconsistent when we compare the condition with the control that each one possesses in a greater or less degree over his sleep. We can will to waken at a particular hour, and generally succeed; thus one who retires at night having it strongly impressed that he must rise at a special time, in order to start on a journey, for example, generally wakens at that time—intense preoccupation prevents, probably, his sleeping as soundly as usual, and the will maintains a partial power. The mother wakens at the least cry from her sick child, or the nurse at a slight movement by her patient, and in each probably the wakening is in part volitional. But it is impossible for us to choose the subjects of our dreams. We may wish most strongly that some theme which has engaged our waking thoughts may be presented in sleep for involuntary mental action, or we may wish to see in these visions of the night a distant or dead friend, but our wills are powerless to gratify our desires. The late Sir William Hamilton justly remarked that it is not always the subjects that occupy us most when awake, that form the matter of our dreams; and it is curious that the persons dearest to us are precisely those about whom we dream most rarely.

While in some cases we can trace dreams to certain physical conditions, yet in most the connection is through too wide a series of associations, or otherwise so obscure that we cannot apprehend it.

In illustration of the former statement, we may refer to the incident narrated by the great metaphysician Reid, as occurring in his own case. He states, "I had got my head blistered from a fall. A plaster, which was put on it after the blister, pained me excessively for a whole night. In the morning I slept a little, and dreamed, very distinctly, that I had fallen into the hands of a party of Indians, and was scalped." In Dr. Reid's case the profound sensation aroused by the pain upon the external part of the head would very naturally suggest the character of the dream, while the dreaming probably was caused by the increased quantity of blood in the brain resulting from the fall. In the case of a woman the membranes of whose brain were exposed by very extensive destruction of the cranial bones, it was observed that during active dreaming the brain became elevated so as to make a slight projection through the opening; the case was under the care of Langlet, and is referred to by Tourdes in the *Dictionnaire Encyclopédique des Sciences Médicales*.

It is probable that dreams are prevented by profound sleep and they do not, as a rule, come in the first hours of rest, but rather when nature's forces have been partially restored, and the sleep is lighter. It certainly ought to startle us into wise thought and action, and right desires and affections, if it be true that the record of our rational lives is registered upon the pages of the brain, and that "every act of sentiment, of thought, of volition, has impressed in us a trace which may reappear." Sometimes, indeed, memory possesses unwonted power in sleep, and we may then recall facts which we vainly sought when awake. So, too, but also only exceptionally, dreams may bring solutions for problems which baffled hard, wakeful labor, and an eloquent passage or graphic description may come to the orator's mind while he is sleeping, or musical verses, as those of "Kubla Khan" to Coleridge, may be suggested to the poet in his dreaming. Such unconscious exercise of intellectual power is very rare, and possibly can only occur in a person of remarkable delicacy and perfection of brain structure, such a one as De Quincey described Charles Lamb to be; "the sensibility of his organization was so exquisite that effects which travel by separate stages with most other men, in his, flash along the nerves with the velocity of light."

We have been led into these observations by reading the very interesting chapter upon "Sleep and Dreaming," in Wundt's *Elémens de Physiologie Psychologique*. The author gives the fullest scientific account of dreams with which we have met, and we desire to present some of his explanations and conclusions to our readers, but having already occupied so much space we must defer this presentation to a future issue.

A NEW LOCAL ANÆSTHETIC.

AT a recent meeting of the Medical Society of Berlin, DR. LEWIN presented a most interesting series of observations upon the physiological effects of a

resinous extract obtained from the root of *piper methysticum*, which is soluble in alcohol, possesses a somewhat aromatic taste, and leaves upon the tongue a sensation of pricking and burning, soon lost in the supervening local insensibility. When the extract, even in very small amount, is instilled into the eye of an animal, a slight local irritation is evidenced by repeated blinking, which soon yields to a marked, enduring, and complete insensibility of the conjunctiva and cornea. In guinea-pigs Lewin has seen this insensibility continue for more than an hour, normal sensation gradually returning. The iris retains throughout its reflex responsiveness to optic stimuli. No anatomical lesions of the cornea or conjunctiva were observed as the result of its application.

When the solution of the extract is injected hypodermatically, the tissues with which it comes in contact completely cease to respond to the application of thermic, electric, and chemical stimuli—a transitory condition which is followed by no symptoms of inflammation.

In regard to the constitutional effects produced by the drug, upon man, much the same claims are put forward as in the case of coca. When used in moderate amounts, a feeling of comfort, contentment, and rest, with complete retention of consciousness and reason, is said to result. With large doses there is a sensation of dreamy happiness, with an intense desire for sleep; while in excess the infusion causes nausea, headache, paresis of the extremities, nervous trembling, and somnolence. The general effect upon birds, rabbits, and cats is analogous to that produced in man.

It is evident that the drug is of considerable importance, and, if further experience shows that it effects in man the prolonged local anæsthesia that it induces in animals, it will be of great utility in very many operations in minor surgery. A quantity of the extract has just been received, and in an early issue of The Medical News we will lay before our readers a report upon its properties.

PAINLESS SLAUGHTERING OF ANIMALS.

Some thousands of dollars, we believe, have been spent by the Antivivisection Society of this city for the purpose of suppressing scientific cruelties which do not exist, and we sincerely trust that the humanitarians who, in this impracticable way, have found vent for their superfluous money and energy, may be induced to turn their forces into a more worthy channel.

We would call the attention of our readers to the accounts appearing in another column concerning the unnecessary brutality which accompanies the slaughtering of animals in Philadelphia.

The committee appointed by the President of the College of Physicians is charged with the duty of endeavoring to secure the introduction of more humane methods into slaughter houses, and is composed of well-known vivisectionists. If they succeed in bringing about the proper reform, they will have done more for the relief of animal suffering than the host of antivivisectionists who have been clamoring for these many years.

There is one aspect of the matter which is of direct practical importance to the meat-eaters of Philadelphia, namely, the apparent total lack of any supervision as to the quality of the meat which is served upon the private tables, and perhaps more freely in boarding-houses. It is doubtful as to how far it is really injurious to eat diseased meat which is thoroughly cooked. We remember once hearing Prof. Leidy, in a lecture, state that on a certain day after dining feeely upon an unfortunate chicken, he called the cook and asked her why she had not sent in the liver, which tidbit he had in vain diligently searched for. The heroine of the kitchen replied, "the liver looked so queer I did not like to cook it." The Doctor then sent for it, and, taking it into his study, soon found that it was in the last stage of cancerous degeneration. Although the danger of physical ills may not be great from such ingesta when well cooked, sentiment is opposed to dining upon the products of disease. It must also be remembered that the poorest quality of beef is usually made into sausages, and that many of these so-called bolognas are eaten raw, or only partially cooked. If there be any truth whatever in the doctrines of Koch and his followers, feeding upon half-cooked bacilli cannot be conducive to the most robust health.

SOCIETY PROCEEDINGS.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, December 28, 1885.

The President, S. Weir Mitchell, M.D., in the Chair.

Dr. Guy Hinsdale presented a communication on

THE METHODS OF SLAUGHTERING ANIMALS AT THE PHILADELPHIA ABATTOIR.

There has recently been put in my hands a series of written questions which relate to the methods of slaughtering animals in our Philadelphia Abattoir. The subject has been brought before the Society for the Prevention of Cruelty to Animals, and the officers of the Society desire to obtain from some of our Philadelphia physicians an expression of opinion as to the proper method of killing cattle with the minimum of pain.

As the members of this Society are doubtless aware, enormous numbers of cattle, sheep, and pigs are slaughtered at the abattoir in West Philadelphia. Into the main hall of the building, which is spacious, having a high roof, with good light and ventilation, the cattle are led in large numbers. They are apportioned to

about fifteen different pens or iron cages arranged in a straight line, each capable of receiving seven or eight bullocks. The iron bars of which the cages are made are separated about fifteen inches from each other, affording a comparatively unobstructed view of the remainder of the room. The gate of exit from a pen is opposite the gate of entrance; above it is the windlass for hoisting. The animal is, in most instances, struck down while standing among his fellows, by a butcher who stands on a plank above him armed with a heavy, long-handled sledge-hammer. He is then hoisted by the windlass through the open door, is disembowelled and dressed for the market within six feet of the animals remaining in the cage, When the carcass is ready for market one of the butchers climbs above the cage, and with the hammer strikes down two more animals; they are dragged out, and so on until all the animals are disposed of.

The Jewish butchers for ages have killed by bleeding. They never use a hammer, but after hoisting the animal by a hind leg, the throat is always cut by a rabbi or "shockem," armed with a keen sabre. This rabbi is detailed for duty at the abattoir.

Underneath the main hall is a cellar in which sheep and pigs are slaughtered by the knife. It is a dark, unclean, repulsive place. Large quantities of accumulated gore are seen in the places where the animals are usually killed. The surface drainage is very bad; the upper floor, though deluged with blood, is attractive in comparison.

The questions to which answers are desired by the Society for the Prevention of Cruelty to Animals are these:

1. Does the Israelitish method produce a total loss of sensation?

2. Does a total loss of sensation arise from a blow struck upon the head of the animal with sufficient force to knock him down?

3. What is the most humane way of slaughtering cattle, which would produce instantaneous death?

4. Do you think a bullock is so sensitive as to suffer terror or agony in witnessing the deathblows and sufferings of his companions?

With a view to satisfy myself on these points, I made three visits to the Abattoir. I had no especial interest in the subject before, and supposed that the methods were not open to criticism.

As for the first question, I think it safe to say that the Israelitish method is instantaneous when once the steel strikes the neck. The blood gushes out, the brain is instantly deprived of blood, and consciousness is lost without appreciable loss of time. The young rabbi deserves credit for the skill with which he performs this operation. To suspend animals with heels up and head down is, at first sight, somewhat harsh, but, on the other hand, they are accustomed to a low position of the head, and the new position is only ninety degrees removed from the normal.

Regarding the second question, it appeared to me that consciousness did not always cease when a blow was struck upon the head of an animal with sufficient force to knock him down.

The first two animals that I saw killed were struck on the head, in the middle line a little anterior to the line of the insertion of the horns. They instantly dropped; a few convulsive movements, sometimes unilateral, sometimes general, occurred, and they were removed from the cage. The next three animals were struck by a different man. Two animals were struck eight times apiece, and the others nine times before the butchers saw fit to proceed to dress the beef. Although the earlier blows were ineffectual, the later ones were delivered when the animals had lost sensation, and when the convulsive movements appeared too violent. In other instances one, two, three, or four blows were required. Animals were partially struck down, and did raise their heads, and look about, unquestionably conscious of pain. The ox is not by any means the only animal that may preserve consciousness after being struck down by a blow upon the head. We ourselves may know this from personal experience. However, one blow well applied was sufficient perhaps, in the majority of instances, instantly to destroy sensation.

Two other cattle which I saw killed at my third visit were attacked by a third man. The first received three blows upon the head, but still the animal walked about, and it became so difficult to induce him to stay still in proper position (the unreasonable creature!) that the butcher resolved to devote his attention to another animal, upon which, also, he delivered three heavy but ineffectual blows. I noticed by this time that the first animal was bleeding from the nose, and that both were able to walk about. This heavy hammer would sometimes bound from the skull as you might expect a wooden mallet to do. The animals gave no cry, and made no violent demonstration, as one might expect; they received these murderous blows as a prize-fighter might receive his, without evincing pain. They, however, became uneasy, endeavored to avoid the man crouching above them, and, without much trouble, were finally dispatched.

As to whether a bullock is so sensitive as to suffer terror or agony, in witnessing the deathblows and sufferings of his companions, interesting metaphysical questions are involved. Butchers in the abattoir do not seem to think that the animals are conscious of their surroundings. They say they occasionally milk a cow in a cage near which animals are being slaughtered. It is quite evident that, as a rule, bullocks make no attempts, or the most ineffectual attempts, to avoid the fate of their companions. In one instance which came under my observation, the last of a series of bullocks became frightened; he dodged the blows, put his head through the bars, and held it low, out of the reach of the butcher standing on the top of the cage. Men with sticks poked him about, while inaccurate blows fell upon his head, until, after a disgusting struggle, he was dispatched. This animal seemed to me to act at the start as though he appreciated danger from witnessing the death of his companions. Butchers say that Texan steers give more trouble than others, and are more liable to grow wild at the sight and smell of blood. It cannot be that their mental powers are radically different from those of other varieties of oxen.

It is not necessary to repeat before this Society anecdotes or proofs to show that a steer may become frantic at the sight and smell of blood. Carnivorous animals are not so susceptible. A dog may even eat another dog, as one of our proverbs says, and yet some dogs

are capable of sympathy, and exemplify it by appropriate behavior. Not only the elephant, but even so small a creature as the ant, manifests sympathy.[1] The sense and the understanding are not the prerogatives of man exclusively. These lower animals have attention, memory, association. They exhibit generosity, gratitude, courage, caution, patience, industry, anger, and grief.

Doubtless the ox or the sheep or the pig cannot claim the possession of all these qualities. But their mental system is much less perfectly understood than ours. "The popular tendency has been to underrate the acquired knowledge of animals, if not to ignore it altogether. At present we are not in a condition to dogmatize, owing to the want of proper observations on the whole department of brute intelligence."[2] As Lauder Lindsay puts it, "the very terms animality and humanity are, on the one hand, unnecessary distinctions; while, on the other, they are generally wrongly applied, for there is more animality in man and humanity in animals than our self-conceit will permit us willingly to recognize. We cannot correctly speak of the animal in contradistinction to the human mind, inasmuch as mind is essentially the same in other animals as in man, differing simply in the degree of its development and the mode of its expression."[3]

But what can be done to remove the objectionable features of this necessary work of slaughter?

1. The work of killing these animals should be given only to a man of experience and power.

2. It is not necessary, and it should not be permitted, that animals should witness the death of their fellows. They may wait their turn together, but finally should be led to an apartment alone, where a single successful death-blow may be given.

3. Means should be provided for making this blow unerring. A crushing blow on the brain-case is, undoubtedly, a painless death, and, by a mechanical contrivance, this might be made unfailing. Fixation of the head would be necessary, and perhaps could be accomplished by means of the horns. An experienced executioner, with an adequate instrument, either in his own hands or under his control, as a trip hammer is under the control of a forger, could then dispatch these poor brutes with the minimum of pain.

4. The number of men who perform this work should be small; and boys, women, and the public generally, should not be permitted to witness these brutalizing scenes.

5. The Jewish method, when rapidly performed, is, on the whole, not a cruel method.

6. The city should take immediate steps to supervise this abattoir; it should have an official inspector of meat, and adopt some effectual, scientific method for the detection and condemnation of diseased meat.

If this Society will endorse these statements, I believe that a better state of things can be secured. If proper evidence can be adduced, the Society for the Prevention of Cruelty to Animals will take hold of the matter and insist on reform in this important public institution.

DR. CHARLES K. MILLS moved that a committee be appointed to visit the abattoir, and report to the Society on the questions proposed by the Society for the Prevention of Cruelty to Animals.

The committee appointed consisted of Drs. H. C. Wood, H. A. Hare, F. X. Dercum, A. P. Brubaker, and Guy Hinsdale.

[1] Romanes, Animal Intelligence, p. 47.

[2] Art. Instinct, Chambers's Encyclop.

[3] Journal of Mental Science, April, 1871.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, February 3, 1886.

THE PRESIDENT, S. WEIR MITCHELL, M.D., IN THE CHAIR.

DR. HORATIO C. WOOD, on behalf of a Committee of the Philadelphia Neurological Society, made the following statement concerning the

PAINLESS SLAUGHTERING OF ANIMALS.

Some weeks ago, the attention of the Neurological Society of Philadelphia was called to the subject of the Philadelphia Abattoir, and the mode there employed of slaughtering cattle and sheep, by a paper by Dr. Guy Hinsdale. The subject was referred to a Committee, of which I had the honor to be the Chairman, for investigation, and, upon the making of our report, the Society directed me, as Chairman of the Committee, to bring the matter before the College of Physicians of Philadelphia, as the highest representative body of the profession in this city.

As is well known, there are yearly killed in the abattoir in West Philadelphia, owned by the Pennsylvania Railroad, many thousands of cattle, sheep, and hogs. The method of slaughtering the sheep and hogs is simply to cut their throats, and to allow them to bleed to death. If this be done skilfully with a single sweep of the knife, the death is rapid, but far from instantaneous, and consciousness is preserved until the blood is nearly exhausted from the body, the supply of the vital fluid through the vertebral arteries being sufficient to maintain temporarily a certain amount of brain function. In the case of sheep, pithing is a very simple operation, and any butcher, after a little practice, could do it with rapidity and ease. The amount of expended time which it would add to the present method is exceedingly small, and we can see no reason, except the callousness of custom, for objecting to its introduction. In the small slaughter houses of the olden time, a rope was thrown around the horns of the cattle, and the animal was violently dragged down to a ring in the floor, and then dispatched with a blow in the forehead. I understand that in the Paris abattoirs this method is modified so far that the bullock is driven into a narrow gangway or pen, a rope thrown round the horns and rapidly hoisted so as to raise the forefeet of the creature from the floor, when the fatal blow is given. In some of the great abattoirs of the West the animal is shot, and, of course, if the bullet be accurately directed, the victim dies instantaneously. In other places pithing is practised, and, if skilfully performed, produces immediate death.

The objection to shooting is the danger of the bullet either simply wounding the animal or occasionally, when discharged through carelessness or accident, passing wide of its mark. It is said that serious accidents have thus occurred in the Chicago abattoirs. Pithing is un-

doubtedly the best method of killing, provided the requisite skill is present, but its proper performance requires a much greater degree of skill than would probably be commanded in our city abattoirs. If the blow upon the forehead be given with a sufficiently heavy instrument, which is provided with a truncated point one and a half inches in diameter, and be well directed, it undoubtedly produces an effect which is as immediate and almost as thorough as that of pithing. I believe that under these circumstances the medulla itself will be found to be crushed or destroyed by the enormous hemorrhage. The idea of the plan which is adopted at the Philadelphia Abattoir appears to be as good as any that is practical, but the method of the carrying out of this plan is exceedingly bad. The main hall of the abattoir is spacious, well lighted and ventilated, and the centre is occupied with fifteen pens or iron cages, placed in a straight line on each side of an avenue. Each of these cages is capable of holding from seven to eight bullocks, and the view of the whole floor is practically unobstructed by the slight iron bars which separate the cages. Over the top of these cages are placed planks. The plan is for the bullocks to be driven into the pens, often until the latter are completely filled. The person who does the killing stands upon the planks above the pen, watches his opportunity, and strikes down one after another of the cattle beneath him. The hindlegs of the theoretically unconscious victims are then attached to a chain, and by means of a windlass the body is dragged out of the pen and suspended with its head downward. After this the throat is cut and the blood caught in buckets or tubs.

The first question which naturally arises is as to the amount of psychical suffering that is produced in the cattle by the sight of death or the smell of blood. After a good deal of observation the Committee of the Neurological Society came to the unanimous conclusion that the cattle had an imperfect consciousness of what was going on; most of them seemed entirely cowed and passive, whilst others were exceedingly restless and apparently very anxious. The Committee did not believe that the suffering would compare with that which would exist in human beings under similar circumstances, but it seemed to be quite definite and distinct.

As no provision is made for the animals being in the proper position for striking, the butcher who uses the hammer, selects his opportunity as best he may. Moreover, the weapon is used by a number of individuals, the result being that in a very large proportion, and, perhaps, in the majority of cases, a single blow is not sufficient. When first struck the animal falls to his knees, or, as in many cases, scarcely flinches, only striving with more or less eagerness to get away from a danger the existence of which he recognizes, but the direction of which he does not perceive; the beast is then driven about as best may be until an opportunity is afforded for a second blow; thus the process of torture is repeated until finally the animal falls. It is also the custom at the Abattoir to strike down three or four bullocks at once; so that some minutes must elapse before the cutting of the throats of some of them. Under these circumstances the unfortunate creature very frequently recovers partial consciousness before his turn comes, and not rarely regains sufficient self-possession to get upon his feet, when the process of striking-down has to be repeated.

Observation made by various members of the Committee, at different private slaughter houses in Philadelphia, shows that there is still greater carelessness and recklessness of animal suffering than in the public abattoir.

It is not necessary to enlarge at all upon the condition of affairs at the Philadelphia Abattoir. Fortunately the remedy is a very easy one, and it can hardly be that the officials of such a great corporation as the Pennsylvania Railroad will fail to apply a remedy when the evil has been brought to their attention. The arrangement of the pens should be remodelled, so that the bullock to be killed shall be isolated in a close, narrow pen, but especially should the striking be performed by one man, whose sole duty it should be to deliver the fatal blows. With the skill that would come with constant repetition, it is probable that it would not be necessary to raise up the head of the bullock at all, but if this be deemed advisable, over the horns of the animal, driven into the narrow pen, a rope could be readily thrown, and in an instant the feet raised from the ground.

Before taking leave of this matter, it seems right to call the attention of the College of Physicians to the very great need there is of some inspection of meat at the Philadelphia Abattoir. Of the dozen or fifteen cattle which I personally saw killed, the internal organs of one were simply studded with tubercular nodules, so that the beast must have been in the last stages of general tuberculosis. The meat was dressed and prepared as that of the others for sale. It is probable that this diseased meat especially finds its way into those forms of sausages which are largely eaten by a portion of our population in a partially cooked condition. It seems to be but right that protection should be afforded to the community against the use of diseased meat, and that, therefore, there should be an inspector having supervision over both the public and private slaughtering places of the city.

In conclusion, I trust that the subject of this communication will be referred to a committee with power to bring the matter, through the public press, to the attention of the citizens of Philadelphia.

Upon motion, the Chair was authorized to appoint such a committee, to consist of three Fellows, with power.

The President appointed Drs. H. C. Wood, H. C. Chapman, and E. T. Reichert as the committee.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, January 20, 1886.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

DR. R. F. WEIR read a paper entitled

RESECTION OF LARGE INTESTINE FOR MALIGNANT GROWTH.

(See page 173.)

DR. BRIDDON remarked that notwithstanding Allingham's opinion that colotomy does not prolong life, he had seen life prolonged and made much more comfortable by colotomy in cancer of the rectum, where

the disease could not be entirely removed. He referred to a case of cylindrical epithelioma of the rectum in which, in the Presbyterian Hospital, he performed lumbocolotomy, and the result was that the general condition of the patient was very much improved, and she was rendered very much more comfortable with reference to the local condition.

Dr. H. B. Sands agreed with Dr. Briddon in his protest against the view ascribed to Allingham, that life is not prolonged by colotomy performed for the relief of cancer of the colon or rectum. He did not know how this conclusion, drawn by Allingham, was arrived at, but he thought it was within the experience of most surgeons present that they had often succeeded in prolonging life by this operation. He could recall several instances in which at the time lumbocolotomy was performed the patient was almost at death's door, and in which life was lengthened for a considerable period. He recalled the case of a patient in this city, in whom, at the time of the operation, there was complete obstruction of the bowel, accompanied with enormous distention of the abdomen, and Dr. Sands was sure that if mechanical relief had not been promptly afforded, he would not have survived more than three or four days. The patient had no bad symptoms after the operation, but recovered from it and lived more than a year afterward, being able, during the greater part of the time, to go about and attend to business. He could recall other similar cases. He had presented to the Society a man upon whom he had performed inguinal colotomy, and who, at the time of the operation, was suffering from complete intestinal obstruction. Dr. Sands believed it could be stated as an established fact that, in a certain number of instances, the operation will not only relieve the urgent symptoms, but also prolong life for a considerable period.

Dr. Briddon said that the most gratifying case in this respect which he had seen occurred about two or three years ago. It was one of acute intestinal obstruction due to malignant growth in the upper end of the rectum. He performed lumbocolotomy, which gave the man complete relief, and he lived for two or three years in a very comfortable condition. The obstruction had existed eight or ten days when he first saw the patient, and the abdomen was largely distended.

Dr. L. A. Stimson said with reference to a collateral point—namely, whether it is advantageous ever to attempt to remove a cancerous tumor of the intestine, that according to the record which Dr. Weir had given, the longest period of survival had been five years. For the encouragement of those who should have opportunity to perform the same operation, he would say that seven and a half years ago he had removed a cancer of the rectum, and the patient, a physician, is still in active practice and good health; there has been no return of the disease.

Dr. Sands said that if it proved to be the result of further experience, that the operation of extirpation of a cancerous intestine can be done in such a manner as to reunite the ends of the intestine, it would still be a matter of doubt whether such an operation, which involves a greater risk than simple enterotomy or colotomy, should be preferred to the latter, for he could imagine that it would be found in cancer of the intestine, as in cancer of the stomach, that surgeons would rarely succeed in making such a radical operation as to give much chance against recurrence of the disease.

Dr. F. Lange said that he had had the opportunity to perform the operation twice; in both cases for malignant growth. In the first case the growth was situated in the ascending colon near the right flexure. It seemed to be very movable, and the patient was in a comparatively good condition. He expected to find conditions favorable for an easy operation, but was very much deceived, for the tumor was intimately adherent to the duodenum. The operation was accompanied by a great deal of hemorrhage, and finally by lesion of the duodenum, which he was obliged to close with suture. He did not, in consequence, have much hope of the success of the operation. The woman died on the second day, of peritonitis.

In the second case he had not intended to perform an operation on the intestine. The case was one of particular interest. The woman, about thirty-two years of age and a widow, applied to him with reference to tumors which had developed comparatively rapidly, and which without much difficulty could be made out as belonging to the ovaries. Dr. Lange regarded the case as one of sarcoma of both ovaries, and did not encourage an operation. The patient had had for the past two years obstinate bloody diarrhœa which could not be controlled effectually by internal remedies, and immediately before the appearance of the diarrhœa she had suffered from an attack of acute dysentery. By her attending physicians the diarrhœa was regarded as being due to the preceding dysentery.

The patient urged that an operation be performed because there were special reasons why she should desire to live a little longer. Dr. Lange, therefore, performed the operation for removal of the tumors, which were taken away without difficulty, but he found to his great surprise that, attached to one of these ovarian growths, indirectly through the omentum, was a large circular tumor of the transverse colon, besides several nodules about the size of a hazelnut in the omentum, and there were also several enlarged mesenteric glands. As the patient was in a fairly good condition, and the operation thus far had not been prolonged, he determined to excise the intestine. The operation lasted about two hours and a half, and went on without much disturbance, and the patient came out from the operation in good condition. The first week was without trouble except that he was unable to check the diarrhœa. On the ninth day the patient died with acute symptoms of perforative peritonitis, which he thought was due to a suture giving way somewhere, in turn due to the incessant peristalsis of the intestine.

Dr. Lange presumed that in cases in which no complication exists the operation is very likely to be beneficial, and is one which will probably prolong life. He did not think that in all cases absolute rules could be stated. In scirrhus of the large intestine, which is movable and without complications, the operation is not more difficult or dangerous than exsection of the intestine for any other cause. The length of time for the operation under such circumstances, which can be performed without very much loss of blood, is not of great importance, if the operation is done with the necessary care and the patient's general condition altogether allows of such an undertaking.

Dr. Sands asked Dr. Lange whether he would not regard cancerous mesenteric glands as a contraindication to the performance of the operation.

Dr. Lange said that if he had known of the condition of the mesenteric glands before the operation he probably should not have undertaken it at all; but having operated and removed the tumors of the ovaries, he thought it was allowable to continue the operation in that case. As a rule, he should say involvement of the mesenteric glands is a contraindication to the operation.

Dr. Briddon asked Dr. Lange what material he used for sutures in the last case.

Dr. Lange thought he used fine silk in both cases.

Dr. Briddon asked Dr. Lange whether he would regard catgut as safe in these cases.

Dr. Lange said it would be safe if primary union took place; but, if such union did not occur, silk might give an additional amount of safety.

Dr. Weir replied that Mr. Allingham's opinion relative to the influence of colotomy upon cancer of the lower bowel did not apply to the relief of obstruction, but to its influence when used in the earlier stages of the disease.

KANSAS STATE MEDICAL SOCIETY.

Adjourned Meeting, held at Topeka, January 25 and 26, 1886.

(Specially reported for The Medical News.)

Monday, January 25.—First Day.

The President, H. O. Hannawalt, M.D., of Kansas City, called the meeting to order.

Dr. Cochrane, of Atchison, reported a draft of a bill from the Committee on

MEDICAL LEGISLATION,

which was received.

Dr. Stormont, of Topeka, opened the discussion by explaining the present law creating a Board of Health for the State, and the powers vested in it, stating that the Board as it is constituted is sufficient for all the purposes of an examining board, and to regulate the practice of medicine and public hygiene in the State, provided the law can be strengthened and made active by an Act which is now before the Legislature.

After free discussion, the proposed bill presented by the Committee was referred back to the Committee, to report again at the May meeting, and the Society expressed its approval of the supplemental Act now before the Legislature to give power to the State Board of Health.

Evening Session.

Dr. J. P. Knoche, of Kansas City, read a paper on

ECZEMA AND SYPHILIS,

the main points of which were: 1st. No such remedies should be given, as the iodides, bromides, etc., which have more or less action on the skin, in a case of syphilis where eczema exists, or a tendency exists. 2d. Where a surface is more or less constantly irritated, with eczema present, and there be syphilis in the system, the latter disease will in the great majority of cases give some evidence of its presence. 3d. Therefore it can be readily seen that it is necessary to recognize syphilitic eruptions that may be more or less intimately combined with the eczematous eruption. 4th. The local treatment of the eczema will avail little, unless the syphilis is treated in conjunction with it, or the specific infiltration is first removed by appropriate treatment. Two cases supporting this view were reported.

Dr. B. E. Fryer, of Kansas City, read a paper on

ENUCLEATION OF IRRITATING EYE, AFTER SYMPATHETIC OPHTHALMIA HAS BEGUN.

It was an exhaustive survey of the literature of the subject. The writer showed that authorities differ as to whether the operation is justifiable after sympathetic ophthalmia has begun, and called attention to the importance of the subject from a medico-legal standpoint. The pathology of the transmission of the inflammation from the irritating to the sound eye was not discussed at length. He favored the theory that it is conveyed along the lymph sheaths of the optic nerve. He then proceeded to quote several cases from his own experience, showing that enucleation is not only justifiable but necessary, even after sympathetic inflammation has begun.

Dr. Tiffany did not believe that there is such a thing as sympathetic neuro-retinitis, but that the inflammation is conveyed from the offending eye to the other by the ciliary nerves, and begins in the most vascular coat, which is the choroid; but he agreed with Dr. Fryer, that enucleation is justifiable after sympathetic ophthalmia has begun. He reported two cases, and presented specimens of ossification of choroid around the optic nerve in old stumps, where abscission of cornea had been done.

Dr. Murphy believed with Schweigger, that the inflammation is carried through the lymph channels which surround the optic nerve, and agreed with the author of the paper.

Dr. George Halley, of Kansas City, then read a paper on

HEMORRHOIDS.

In the treatment of the mild form of external piles, he advised that they be laid open with the knife and hot fomentations be applied.

For the milder cases of internal piles, he recommended the exhibition of a laxative, and quiet in bed, and that the tumors be injected with carbolic acid, ten per cent., in olive oil. In cases of long standing, he recommended division of the deep connective tissue and cicatricial bands with the knife in four or five places around the lumen of the rectum, care being taken not to divide the hemorrhoidal arteries. The operator should then divulse the rectum and smear with carbolized castor oil, quiet pain with suppositories of opium and belladonna, and build up the system with tonics.

Dr. Baldwin said that his experience with the use of carbolic acid injections was not satisfactory. They caused *extreme* pain and some alarming symptoms, such as retention of urine, etc.

Dr. Halley replied that if the point of the needle is inserted well inside the mucous membrane, into the tumor, but little pain will result, and no ulceration follow.

Tuesday, January 26.—Second Day.

Morning Session.

But few members were present, and all business of import having been transacted, a motion to adjourn until the third Tuesday in May, 1886, was carried.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, February 3, 1886.

The President, A. Jacobi, M.D., in the Chair.

SECTION OF ORTHOPÆDIC SURGERY.

Dr. Newton M. Shaffer reported that a Section of Orthopædic Surgery had been organized, and that at its first meeting Dr. Ketch read a paper on "Rotary Lateral Curvature of the Spine," which was discussed by Drs. L. A. Sayre, V. P. Gibney, C. F. Poore, L. H. Sayre, N. M. Shaffer, and others.

Dr. M. A. Starr read a paper on

THE INTRACEREBRAL TRACTS: THEIR PHYSIOLOGY AND ITS BEARING ON THE DIAGNOSIS OF LESIONS OF THE CENTRUM SEMIOVALE.

In it he described in detail the functions and relations of the three sets of fibres, the projection, the commissural, and the association fibres, so far as they are known at the present day, and stated that lesions of the centrum ovale may give rise to three sets of symptoms, referable to these three sets of fibres. In illustration of the subject, he gave an elaborate report of a case of Charcot's, of which he had had the opportunity of making a careful personal study, and exhibited specimens of brains which had been hardened for six months in alcohol and prepared by teasing in such a way as to show the various intracerebral tracts.

Dr. Crossman remarked that these tracts were not shown as satisfactorily in the specimens exhibited before the Academy to-night as they had previously been in Dr. Starr's office, where he had had an opportunity of seeing the fibres exposed by the teasing process, the demonstration at that time being absolutely perfect.

Dr. Aug. G. Caillé read a paper on

PERMANENT DRAINAGE IN ASCITES,

in which he first related the case of an elderly gentleman who came to him for treatment about four years ago, suffering from cirrhosis of the liver. This soon necessitated tapping, and in the course of the next seven months he was tapped no less than nine times. Before resorting to a tenth tapping, Dr. Caillé determined that he would make a fistula in the abdominal walls, and put in a permanent drainage tube. He, therefore, made an incision one inch in length in the linea alba below the umbilicus, and inserted an inch of drainage tube into the peritoneal sac, retaining it by means of a varnished safety-pin, and using antiseptic precautions in the dressings applied. In about a week an eczema of the abdomen and thighs developed, owing to the fact that the patient could not keep himself dry by means of the cloths with which he was supplied. The abdomen and thighs were then smeared with mutton tallow, and the eczema disappeared in six days.

The result of the permanent drainage was that the general œdema, and all the other distressing symptoms from which the patient had been suffering, disappeared. He was soon able to go about with ease, and for nine months was able to attend to his ordinary occupations, contented and comfortable. He finally died from heart failure. When the drainage tube was first put in, from two to three pints of fluid were excreted daily; but this gradually diminished, until it ceased entirely, and the ascites never reappeared. An autopsy was made, when it was found that there was cirrhosis of the liver, with cardiac hypertrophy. There was not the slightest evidence of peritonitis at the point where the tube had been inserted.

A second case was that of a male, forty-six years of age, who had been a confirmed whiskey-drinker, and who was suffering from cirrhosis of the liver, ascites, and general anasarca, with all the distressing symptoms usually attendant on such a condition. He also had purpura hemorrhagica, stomatitis, and vomiting, and the heart's action was irregular and miserable. He was tapped once, and then the fluid reaccumulating, Dr. Caillé made an opening and inserted a permanent drainage tube in the same manner as in the preceding case, protecting the parts with iodoform gauze and dry towels. When the patient was in bed or sitting in a chair, a rubber tube conveying the fluid to a vessel on the floor was often attached to the drainage tube. There was at once great improvement in the general condition; but about three weeks after the fistula was made the patient suffered from a severe attack of epistaxis, which necessitated the plugging of the posterior nares. The purpura, vomiting, stomatitis, and other troubles then disappeared, and he lived in comfort, without any return of the ascites, for a considerable period, finally dying of paralysis of the heart. In this case no autopsy was made.

Of course, he said, it was not claimed that this treatment is curative. Its object is simply the amelioration of the troublesome symptoms always associated with ascites. All the points involved in it are comprehended in a discussion of four questions: The first is, What are the symptoms most troublesome and dangerous in ascites? Ascites may occur alone, or associated with general anasarca; but in either case dyspnœa, flatulence, constipation, debility, renal trouble from the pressure of the fluid, and a host of other evils are liable to ensue.

The second question is, How is collateral circulation established in cirrhosis of the liver? The various channels through which this was accomplished were pointed out by Dr. Caillé.

The third question was, Will absence of intra-abdominal pressure promote collateral circulation, the functional activity of other organs, and the comfort of the patient, as well as tend to prolong life? This he answered in the affirmative.

The fourth question was, How is drainage best accomplished? It could not be denied, he said, that the large amount of fluid which was drawn from the system in the method which he was advocating constituted a considerable drain upon the vital forces, and he showed what a large amount of albumen would thus be abstracted in a given time; but, on the other hand, this was of comparatively little importance on account of the benefit derived from the better performance of the functions of other organs which resulted from the establishment of drainage.

He then went on to say that the *technique* of the proposed plan of procedure might be improved upon. For instance, a hard rubber or glass tube might be employed, and a flax bag, or antiseptic pad, to be worn on the abdomen below the fistula, might be provided. In all cases it is necessary that antiseptic precautions should be observed, though the danger from penetrating

the peritoneum is found to be much less when ascites is present than under other circumstances. A large experience, he said in conclusion, is needed to determine the indications for permanent drainage, and the cases in which it is applicable.

The President said that the procedure described by Dr. Caillé was an imitation of what is sometimes accomplished spontaneously by nature. Spontaneous rupture of the abdominal walls may take place in ascites, and it is not of very infrequent occurrence. It sometimes takes place in the linea alba, but most commonly at the umbilicus. The fistula made by nature, however, may be in a spot which is inconvenient and uncomfortable for the patient; but, when we make an artificial fistula, we can select the place which will be in every way the most satisfactory. Not long since, he had seen in the German Hospital a patient in whose case a spontaneous fistula had already been established when he came under observation. While he remained in the hospital he lost fifty pounds in weight, and he went out feeling comfortable and able to walk.

He then related another case, in which, he said, he had to resort to permanent drainage. This patient was a young woman, twenty-three years of age, in his service at Bellevue Hospital, who had a history of anæmia and chlorosis, and had attained the age of nineteen years before she began to menstruate. For six or seven months before admission menstruation had ceased, and some six months before the cessation she had noticed a circumscribed swelling in the right hypogastric region. This gradually increased in size until she came into the hospital, when it was found that the tumor was quite large. At that time, however, it was two-thirds in the left hypogastric region, and only one-third in the right. There was decided tympanites in the renal region and over the ascending colon. From the fluctuation recognized through the tumor he decided that it was a cyst, and probably an ovarian cyst originating in the right ovary. The uterus was normal.

An abdominal incision was made with a view of removing the tumor, when it was found that there was no cyst at all. The condition present was, in fact, ascites, with strong adhesions on both sides, and a glass tube was left in the abdominal opening for six weeks. In the meanwhile the fluid did not return, and the patient was discharged in an improved condition. Afterward, however, he learned that there had been a reaccumulation. In this instance the ascites was probably due to tubercular peritonitis, and the fatal termination was only a matter of time. Dr. Jacobi remarked that a number of years ago he had made precisely the same mistake in diagnosis, but it was one to which all are liable, since ascites, when thus circumscribed by adhesions, presents exactly the same characteristics as an ovarian cyst.

A third case which he related had come under observation after he had become acquainted with Dr. Caillé's procedure of forming an artificial fistula. The patient had cirrhosis of the liver, and suffered from icterus, purpura, epistaxis, dyspnœa, and loss of strength. He introduced a trocar through the abdominal walls, midway between the umbilicus and bladder, and through this inserted a sterilized tube into the peritoneal cavity. To this was attached a rubber tube to convey the fluid to a pail under the bed. This procedure was adopted as a palliative measure to give the patient, who was in a hopeless condition, as much comfort as possible, and the tube was kept in position until he died. At night it was usually plugged up with wax. The quantity of fluid which flowed through it at first was extremely large, but gradually became smaller and smaller. The general condition of the patient after the operation was favorable, but he finally died of exhaustion. At the autopsy there was not found the slightest evidence of local peritonitis. Dr. Jacobi said, in conclusion, that he was convinced that the plan proposed was a good one, and that he should repeat the operation whenever suitable cases presented themselves to him.

Dr. Lindley inquired whether any medicinal treatment for the relief of the condition was used in Dr. Caillé's cases, in addition to the establishment of permanent drainage?

Dr. Meyer stated that he had had under his charge a case of cellulitis ending in a large accumulation of pus, in which a fistula was spontaneously formed below the umbilicus. In this instance he made a counter-opening from the peritoneal cavity into the vagina, and through this the pus had been discharging for the last two years. The quantity has, however, been gradually diminishing, and the cellulitis was also decreasing. In ascites also, occurring in females, it had occurred to him, therefore, that it might be advisable to make an opening into the vagina.

Dr. Meyer, in reply to a question from the President whether in the case mentioned he was sure that the pus was in the abdominal cavity, said that he was positive of this, and that the patient had previously had peritonitis.

Dr. Caillé having stated that that in his cases great care was used in the selection of food, but that no medicine had been used except Horsford's acid phosphate, Dr. Lindley said that among the Dutch in South Africa he had found that honey was held in very high repute in cases of abdominal dropsy. He then related a case of his own there, in which, after tapping, the fluid rapidly reaccumulated. He was then persuaded by some of the old women to try the effect of honey, when, to his suprise, the man, although he had every symptom of cirrhosis of the liver, began to improve, and in time was apparently entirely cured. He would not pretend to give any explanation of this; but the great confidence in the efficacy of honey which was universal in that district, seemed worthy of notice.

Dr. B. F. Sherman, of Ogdensburgh, suggested that the peculiar virtue of the South African honey might, perhaps, be derived from the flowers from which the bees gathered it.

The President then made some remarks on the medicinal treatment of the affection in question. He was confident, he said, that he had seen cases of cirrhosis of the liver recover perfectly; but it was to be remembered that an interstitial hepatitis is not necessarily a universal hepatitis, just as interstitial nephritis, myelitis, and encephalitis might be partial, instead of involving the whole extent of the organ affected. In a number of cases which had come under his observation, in which the diagnosis of cirrhosis had been made by himself and others, the ascites had disappeared, and never returned; the liver getting smaller, without a corresponding enlargement of the spleen, and the patient becoming practically well.

The treatment was, to his mind, very simple. When we meet such cases of interstitial inflammation in practice, and can make out a history of syphilitic trouble, we always congratulate ourselves and the patient on this account, because of the more favorable prognosis which it enables us to make; there being a fair chance of recovery as a result of an appropriate course of treatment with iodide of potassium and bichloride of mercury. He then remarked that as a student he had been taught that it was a cruel thing to give mercury; that it was antiplastic, and that if with it you succeeded in curing the disease present in any case, it was only to destroy the patient with the remedy employed. Except in syphilitic cases, therefore, for a number of years he used no mercury whatever in his practice. During the last ten or fifteen years, however, he had been endeavoring to make up for this mistake in regard to this really most useful agent. He had found by experience that in various forms of interstitial inflammation mercury is often very beneficial, and in this connection he related a case of tabes which he had had under observation for about twenty-five years. For a long time there was no improvement, although nitrate of silver and other agents had been faithfully tried; but since he had resorted to the use of mercury there had been marked progress, and the patient, although he had never had syphilis, was now practically well.

In interstitial hepatitis, nephritis, myelitis, and encephalitis, therefore, he would recommend the use of mercury; and it should be given in such a form and in such doses as could be taken for a long time. As a rule, the bichloride is the most suitable preparation, and it might be given, largely diluted, in solution, or preferably in pills, the ordinary amount called for being about one-tenth of a grain three times a day. The patient should be instructed to use a chlorate of potash wash, and to watch his gums carefully. The cyanide of mercury has been recommended by some; but he has had very little experience with it.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, January 22, 1886.

THE PRESIDENT, T. G. RODDICK, M.D., IN THE CHAIR.

DR. WM. GARDNER exhibited the following pathological specimens:

(1) FIBROID POLYPUS OF THE UTERUS.

This was about the size of an orange, and was removed from a woman aged 48, the growth being in the vagina, and was attached along the whole length of the posterior wall of the uterus. The patient was much blanched by hemorrhage, which had lasted almost constantly for five years. She made a good recovery.

(2) DISEASED OVARIES.

These were two in number, and were slightly enlarged and cystic. They were the second ovaries from two cases of ovariotomy. The tumor in one case was an unilocular ovarian cyst, and in the other an ordinary multilocular cystoma. In each case the uterus was enlarged and retroverted, and menorrhagia had in both been a prominent symptom. Dr. Gardner remarked that in such cases where the second ovary is diseased, the question arises as to what should be the proper treatment when part of the ovary seems healthy. Schröder has recently published reports of a number of cases in which, instead of complete removal, he had excised the diseased tissue by a wedge-shaped incision, and brought together the cut surfaces by sutures. The object in such cases is to permit, if possible, of subsequent conception. Dr. Gardner was not aware, however, of conception having occurred under such circumstances. He thought that, after ovariotomy, the second ovary had often been unnecessarily removed, as slight enlargement and a cystic condition do not necessarily imply that an ovarian tumor will be developed therefrom. The responsibility on the part of the surgeon in dealing with such conditions assumed a new aspect in the light of Schröder's experience.

CEREBELLAR DISEASE.

DR. GEORGE WILKINS read a paper on the above subject, and reported the following cases:

Case I. Cerebellar Hemorrhage.—On the 2d of November, 1882, I was called to see a young lady, æt. 19, who, I was told, had had a fainting fit which she had not come out of. She had arisen at her usual hour, and expressed herself as being well. She went down to breakfast, but soon complained of a most intense pain in the head, accompanied by vomiting. The vomiting relieved her somewhat. Her mother left her lying on a sofa and returned in a few minutes to find her, as she supposed, in a fainting fit. Dr. Wilkins was sent for, and, on his arrival within a short time, found that the girl was dead.

A post-mortem examination could not be obtained till two weeks after death, and was performed by Dr. Wm. Osler. The brain was the only portion of the body allowed to be examined. On removing the brain, nothing abnormal was seen on the upper surface of the hemispheres, but the under and lateral surfaces of the right temporal lobe were covered with an extensive but thin clot, as were also the pons and medulla. The right lobe of the cerebellum was considerably larger than the left, and, on cutting into it, a large clot the size of a plum was observed close to the central lobe. On examining more closely, a pinhole aperture was seen on the superior surface of this lobe, and the internal clot was through this opening continuous with the clot covering the temporal lobe. Death, of course, was caused by pressure on the medulla from the blood which escaped from a ruptured bloodvessel in the cerebellum.

Case II. Cerebellar Hemorrhage (?).—A year ago last December I was called to see a young lady, æt. 16, who had been complaining of headache, which her mother thought to be biliousness. Two days before, she had awakened in the night, complaining of intense pain in the back of her head, accompanied by vomiting. Both lasted for five hours, and then gradually ceased. Next day she remained in bed, and suffered but little. During that evening the pain became again intense, and the vomiting returned. On the following morning she was seen by Dr. Wilkins, and then complained of constant and acute pain in the left occipital region. Temperature was normal, and pulse 72. At the time the pain was thought to be possibly neuralgia, and hop poultices were ordered to the back of the head, and

bromide of potassium internally. Next morning at eight o'clock she was seen again, and was comparatively easy; but her parents said she had been in agony all night. Her temperature and pulse were still normal. Dr. Wilkins was puzzled to account for the symptoms, and suspected tubercular disease of the brain. On visiting her at 2.30 P. M. the same day, he found she had died about five minutes before his arrival. For some hours before her death she had complained of general numbness, and her intellect was not clear. The pain ceased some two hours before death. No autopsy was allowed, but, from the symptoms and sudden termination, the reader of the paper considered himself justified in regarding it as a case of cerebellar disease.

Case III. Cerebellar Abscess.—John F., æt. 17, was admitted into the service of Dr. Wilkins, at the General Hospital, June 10, 1885, suffering from malaise, headache, vomiting, dizziness, and general weakness. Patient was a strong, healthy boy previous to present illness, which commenced some two weeks before admission. About this time he had a fall, striking shoulder and head, which caused a severe attack of vomiting, and confined him to bed for several days. On going back to work he got wet, and complained of pains in head, back, and body generally, and the vomiting and dizziness returned. These symptoms gradually increased in severity up to date of admission. On admission it was noted that he was stupid and lethargic; his pupils were dilated, tongue coated, and there was loss of appetite; had also insomnia and constant vomiting. Temperature 100°, pulse 70. Case was regarded as a mild attack of typhoid. The headache still continuing, an ice cap was ordered for his head, and bromide of potassium given in drachm doses at bedtime. On June 13 he became very stupid and restless, insisted on getting out of bed, could walk, but was very unsteady and weak, a swaggering gait. On June 16, four days after admission, on making his morning round, the House Physician, Dr. Gustin, found the patient cyanotic and almost asphyxiated, and he died soon after. The post-mortem showed pus in the arachnoid space, between the medulla and right side of cerebellum, and in the right lobe of cerebellum was found an abscess the size of a large filbert.

Dr. Wilkins, in speaking of the second case, said he thought he was quite justified in placing it under the head of cerebellar disease, because of the sudden termination of life without convulsive symptoms, and the continuance of consciousness. He thought these symptoms could only be explained by the occurrence of a hemorrhage from the cerebellum finding its way to the floor of the fourth ventricle and there compressing the motor sensory tract. The abscess in the third case he considered to be due to the fall which the patient had two weeks before admission to the hospital, as he was quite well before that time.

Dr. Wilkins alluded to the fact that the brain rests on a water cushion (first pointed out by Hilborn), which breaks the force of blows, but in some parts the brain is in contact with its bony walls, as, for instance, the brain rests on the orbital plates of frontal bones anteriorly, and the occipital bone posteriorly. Hence the frontal lobes and cerebellum, in blows upon the skull, are more liable to injury.

In this connection Dr. Wilkins showed the Society a specimen of hemorrhage into the white substance of the right frontal lobe. The case was that of a man who, while intoxicated, fell down stairs. He lived ten days after the accident and complained but little of pain, showing the insensitiveness of the brain itself. The intense pain of the first case was readily explained by the pressure caused by a blood-clot between the membranes of the brain, these latter possessing sensitive fibres.

In Cases I. and II. the persistent vomiting with constant and severe pain in the head and intense restlessness, Dr. Wilkins held, was significant of cerebellar disease.

DR. GEORGE ROSS said that many of the cerebral cases were at first thought to be bilious attacks, but the severe character of the pain should exclude this supposition, and if vomiting were present the case could not be looked upon as neuralgic. He thought it a pity that an ophthalmoscopic examination had not been obtained. In Dr. Wilkins's third case, which was long-continued, he had no doubt an ophthalmoscopic examination would have shown an optic neuritis.

DR. HENRY HOWARD said that the symptoms recorded by Dr. Wilkins in his second case were not necessarily those of cerebellar disease, as the same symptoms might be produced by pressure on the pons medulla from hemorrhage into the fourth ventricle.

DR. GODFREY thought that many cases of cerebral hemorrhage were benefited by free bleeding, and he was amazed that bloodletting as a method of treatment had of late years been so entirely abandoned.

DR. ARMSTRONG related the case of a man aged forty-five, who had a very severe headache which lasted a few days and then disappeared; it returned again and was accompanied by vomiting. The man soon died, and a post-mortem revealed a large clot covering the left side of the base of the brain. He asked whether there was any specific history in any of the cases reported.

DR. STEWART asked Dr. Wilkins what reasons he had for thinking his case was one of cerebellar hemorrhage.

DR. KENNEDY related a case of sudden death in a woman from supposed cerebral hemorrhage, which was at first treated as a case of hysteria. There was no vomiting in this case, and but little pain.

DR. MIGNAULT asked why bloodvessels should rupture in the brains of apparently healthy young women. It seemed strange that rupture should take place without previous disease of the vessels.

DR. WILKINS, in reply, stated that there was no evidence of specific disease in any of his cases. He looked upon the second case as one of hemorrhage because of its suddenness and the fact that the temperature was normal. Had the case been one of abscess or tubercular disease, the course would have been less rapid and there would have been higher temperature.

NEWS ITEMS.

YELLOW FEVER COMMISSION.—The House Committee on Commerce has agreed to report favorably a bill for the appointment of a commission of three to visit Mexico, the Central American States, and Brazil, for the purpose of investigating the methods pursued in those coun-

tries for the protection of the people against yellow fever. The bill provides that two members of the commission shall be appointed from among persons now in government employ, and the third from civil life.

PENNSYLVANIA LEAGUE FOR THE PROTECTION OF SCIENTIFIC RESEARCH.—There was recently formed in Philadelphia an association known as the Pennsylvania League for the Protection of Scientific Research. The objects of the League are in general terms stated in its name, but we understand that the intention is to resist all attempts to obtain any legislation in regard to vivisection beyond that which now exists upon the statute books of the Commonwealth. It is held by the society that the general act for the punishment of cruelty to animals is all sufficient for the prevention of any abuse of scientific methods.

There are two classes of members, active and honorary. The annual dues for active members is fixed at $2; and we understand that any member of the regular profession, in good standing, will be accepted as an active member, no formality being necessary, except to send an application to one of the officers. The officers are a president, secretary, and treasurer, and an executive committee of three. Dr. H. C. Wood was elected President, and Dr. Hobart A. Hare, Secretary and Treasurer. The executive committee has not yet been nominated.

OBITUARY RECORD.—At his residence in New York, on the morning of February 7th, after a brief illness, ALFRED C. POST, M.D., Professor Emeritus of Clinical Surgery and President of the Medical Faculty of the University of the City of New York.

Dr. Post was born in New York on January 13, 1806. He entered Columbia College, and was graduated in the Arts in 1822. A year afterward he entered the office of his uncle, Dr. Wright Post, an eminent surgeon, and began attending the lectures at the College of Physicians and Surgeons. After receiving his degree, in 1827, he went to Europe, and attended lectures in England, Ireland, and Scotland. Then he went to Germany and France to continue his studies, and spent a number of months in the large hospitals at Paris and Berlin. He came back to America after an absence of two years.

A few days after his return, in 1829, he was appointed House Surgeon of the New York Hospital, and within a year became assistant to Dr. Alexander H. Stevens, the Professor of Surgery in the College of Physicians and Surgeons. He was elected Surgeon to the Eye and Ear Infirmary in 1830. In 1851 he was appointed to the Professorship of Surgery in the Medical Department of the University of the City of New York, a position which he held up to 1875, when he was made Emeritus Professor.

He was a member of the County Medical Society, the Academy of Medicine, the Pathological Society, and the Surgical Society; Consulting Surgeon of St. Luke's and the Presbyterian Hospitals, President of the New York Missionary Society, and Director of the Union Theological Seminary. He leaves three sons and four daughters.

THE DEATH OF DR. JULES GUÉRIN, the dean of medical journalism in France, and the founder of the *Gazette Médicale de Paris*, has just been announced. Born in 1801, he was graduated in medicine in 1827 after six years of study under Chaussien, Boyet, and Roux. In 1837 he was a successful competitor for the *grand prix* in surgery, and it is stated that the thesis then presented on the deformities of the osseous system would, with the additions he has since made, fill some sixteen folio volumes of text, besides one hundred tables and four hundred plates. It is hoped that some means will be found for insuring the publication of this most valuable monument of industry.

NOTES AND QUERIES.

A CORRECTION.

To the Editor of THE MEDICAL NEWS.

SIR: Permit me to say, in reply to Dr. Massey's criticism, in THE MEDICAL NEWS, of my note, that in allowing him 100 ohms for the resistance of the metal circuit, I referred to the external resistance less that of the cotton. The "metal circuit" comprises wire and *milliampèremeter*. Milliampèremeters are of *high* resistance; why this is so, will be found explained in *Elementary Lessons in Electricity*, by Silvanus Thompson, pages 161 and 314. Mr. Barrett, whose milliampèremeter I am informed Dr. Massey uses, writes me that its resistance is 170 ohms; my allowance is therefore 70 ohms *less* than it should be. Waite and Bartlett inform me that their milliampèremeter has a resistance of 175 ohms.

I am, very truly yours,

GRANVILLE FAUGHT.

115 NORTH FIFTEENTH ST.,
February 4, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING FEBRUARY 6, 1886.

BABIN, H. J., *Surgeon.*—Ordered to U. S. S. "Vandalia."

DIXON, W. S., *Surgeon.*—Ordered to Marine Rendezvous, New York, to relieve Surgeon Babin.

WHITING, ROBERT, *Passed Assistant Surgeon.*—Ordered to U. S. S. "Vandalia."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 2 TO FEBRUARY 8, 1886.

BROWN, H. E., *Major and Surgeon.*—Granted leave of absence for six months, on surgeon's certificate of disability, with permission to leave the Department of the Missouri.—*S. O. 29, A. G. O.*, February 4, 1886

WHITE, ROBERT H., *Captain and Assistant Surgeon.*—Granted two months' leave of absence, to take effect when his Department Commander may think proper.—*S. O. 29, A. G. O.*, February 4, 1886

CHAPIN, A. R., *First Lieutenant and Assistant Surgeon.*—Relieved from temporary duty at Fort Robinson, Neb., and ordered to rejoin his proper station, Fort Laramie, Wyoming Ter.—*S. O. No. 11, Department of the Platte*, February 2. 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING FEBRUARY 6, 1889.

BENNETT, P. H., *Assistant Surgeon.*—Died at Detroit, Mich., February 3, 1886

WATKINS, R. B., *Assistant Surgeon.*—To proceed to Detroit, Mich., for duty, February 3, 1886.

PETTUS, W. J., *Assistant Surgeon.*—Appointed an Assistant Surgeon, February 5, 1886. Assigned to duty at New Orleans, La., February 6, 1886.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLVIII. SATURDAY, FEBRUARY 20, 1886. No. 8.

ORIGINAL LECTURES.

ON NEW PULMONARY MEDICAMENTS.[1]

A Clinical Lecture, delivered in Cochin Hospital.

BY PROFESSOR DUJARDIN-BEAUMETZ,
OF PARIS, FRANCE.

GENTLEMEN: I shall occupy this lecture with a brief consideration of three new pulmonary medicaments: *Euphorbia pilulifera*, *terpine*, and *terpinol*.

The best antiasthmatic medication is surely that of which the basis is iodide of potassium, and when Green in 1860, Aubree in 1864, Trousseau in 1869, and, more emphatically still, Germain Sée in 1878, made known the happy effects of this remedy in the treatment of asthma, they rendered to medicine a signal service; you can, in fact, see any day in our wards cases illustrating the truth of this affirmation.

You know very well how we formulate this treatment; we begin by moderate doses of seven or eight grains and gradually increase them to thirty, forty, and even sixty grains a day. I am in the habit of ordering the iodide of potassium to be taken in milk, directing my patients at the same time to drink a great deal of milk during the day. We must, in fact, to prevent accumulation of the medicament, favor its elimination by the urine. While continuing the usage of milk, I think that the best vehicle for the administration of iodide of potassium is ale, which, in my opinion, disguises its taste better than anything else. We are in the habit, then, of ordering the patient to take at meal-time, in a tumblerful of bitter ale, a dessertspoonful or a tablespoonful of the following solution:

℞.—Iodidi potassii . . . . . ℥iij.
Aquæ . . . . . ℥vj.—M.

I sometimes add to the above tincture of lobelia, in the proportion of two or three fluidrachms to the entire quantity; if, however, the lobelia causes nausea, it must be omitted from the prescription.

Despite all your precautions and all your endeavors to make the iodide palatable and well tolerated, there will be persons who cannot support it, and who cannot take it in the smallest doses without suffering many of the symptoms of iodism. Therefore succedanea to iodide of potassium have been sought for, and among these I must make special mention of *Euphorbia pilulifera*. This plant has been especially studied in our hospital service by Dr. Marsset.[2] Euphorbia pilulifera belongs to the great family of Euphorbiaceæ, which has furnished to medicine very energetic purgatives, such as croton tiglium and caper spurge; it is an herbaceous annual plant, growing in Brazil and other tropical countries, and in Australia; the specimens which served for our clinical experiments came from Queensland, Australia.

The active principle is an acrid resin which is soluble in water and dilute alcohol. When the aqueous extract or the hydro-alcoholic extract is administered to animals, such as frogs or guinea-pigs, it is observed that in the case of frogs this extract is toxic in the dose of ten to fifteen centigrammes, which corresponds, nearly, to five grammes of the dried plant to one hundred grammes of the weight of the animal. In the guinea-pig the toxic dose is less; the animal succumbing to a dose of fifty or sixty centigrammes of the extract, equivalent to about one gramme of the dried plant per one hundred grammes of the animal's weight.

When we come to inquire into its physiological effects, we note that it acts chiefly on the respiratory apparatus, and that to a period of acceleration succeeds a period of retardation of the respiratory movements and beatings of the heart; hence, it is probable that this medicine acts directly on the respiratory and cardiac centres.

Dr. Mattheson, in 1884, was the first to call attention to the action of euphorbia pilulifera in the treatment of asthma, and Dr. Tison, of France, was the first to utilize this property in dyspnœas of asthmatic and even of cardiac origin.

From a pharmaceutical point of view you may make use of the following preparations: (1) The hydro-alcoholic extract of the plant, which may be given in the dose of ten centigrammes (one and two-thirds grains) a day; (2) or the decoction, which Dr. Tison directs to be prepared by steeping half on ounce of the dried plant in two quarts of water; the dose to be three or four wineglassfuls a day. (3) I am myself in the habit of using the tincture of euphorbia, of which I give ten drops three times a day. I recommend you to cause this preparation to be taken shortly before meal-time in a cup of some aromatic infusion, such as polygala or wall pellitory. You will thus avoid the local irritant action which characterizes almost all the extracts of this spurge. (4) There exists, lastly, a syrup made by Petit, which contains five centigrammes of the extract in each tablespoonful.

In patients suffering from dyspnœa, whether resulting from simple asthma, or from pulmonary emphysema, or even a cardiac affection, euphorbia has sometimes given us good results, but it will not do to give too large doses, and of the tincture, from five to ten drops, before each of the principal meals, are enough. Notwithstanding all these precautions, you will not be able to keep up this treatment more than a week without interruption, for the patients are apt to experience a burning sensation in the stomach, which results from the local irritant action of the medicament. It is, therefore, chiefly as a succedaneum of iodide of potassium, when the latter cannot be well borne, that you will resort to euphorbia pilulifera.

Terpine and terpinol fulfil indications absolutely different, and are applicable in catarrhs of the lungs.

[1] Translated, from advance sheets, by E. P. Hurd, M.D., of Newburyport, Mass.

[2] Marsset: On Euphorbia Pilulifera, Therapeutic Gazette, Feb. 1885, p. 92; Thèse de Paris, 1884.

In my *Clinical Therapeutics* I have insisted on the great advantages which may be derived from copaiba in the treatment of pulmonary catarrh, but this medication can have but limited application; for, to say nothing of the repugnance which many patients have toward copaiba, and its unfortunate association in the minds of most people with gonorrhœa (which increases the prejudice against it), there are certain unpleasant physiological effects often attendant on its use, such as eructations, diarrhœa, and divers cutaneous eruptions, which militate against the usefulness of this drug.

Therefore, while recognizing how happily copaiba modifies expectoration, it is only in hospital practice that I apply this excellent medicament to the treatment of pulmonary catarrh. I believe that I have found in terpinol a very fortunate substitute for copaiba, and one which offers all the advantages of the latter, without any of its disadvantages.

When turpentine is distilled in presence of an alkali, there is obtained a special hydrocarbon having for formula $C_{10}H_{16}$; this is *terebinthene*, which undergoes hydration, and thereupon furnishes a white, solid, crystalline body, which is the *bihydrate of terebinthene*, or *terpine*. This terpine, in presence of an acid, such as sulphuric or hydrochloric, is transformed into an oily body, to which has been given the name of *terpinol*.

Terpine was employed for the first time in therapeutics by Prof. Lepine, of Lyons, and, as a result of experiments on man and animals, he found that this body might be with advantage substituted for turpentine, and that it acted as expectorant and diuretic; his dose of terpine is twenty to sixty centigrammes (three to ten grains). We have reproduced in our service the trials of Prof. Lepine, and our pupil Dr. Guelpa has interested himself particularly in this undertaking. Terpine presents a real inconvenience in its slight solubility, requiring, as it does, 200 parts of cold water to dissolve one part of this substance; therefore, it is necessary to have recourse to alcohol in order to obtain active solutions; which is a drawback when one desires to prescribe it for diuretic purposes.

We have given terpine in much larger doses than M. Lepine; we have administered one, two, and even three grammes a day without obtaining any well-marked diuretic effect; so, in accordance with Tanret's suggestion, we have substituted terpinol for terpine.

Terpinol is an oily liquid body, which gives forth a very strong odor of tuberose (polianthes tuberosæ), and especially of gardenia (cape jasmine). Adrian has made for me capsules with terpinol, each containing ten centigrammes (one and two-thirds grains), and we give our patients six, eight, ten, and even twelve of these capsules a day. Terpinol may also be given in pill form, and here we give Tanret's formula, which can hardly be improved upon: Take of terpinol, benzoate of soda, of each, ten centigrammes (one and two-thirds grains), sugar, q. s. for one pill. These pills contain the same quantity of terpinol as the capsules.

We have made several experiments on animals, and have noted: 1. The rapid elimination by the respiratory passages of terpinol, which long imparts its special odor to the breath; 2. Its feeble elimination by the urine, which also gives forth the odor of terpinol, though much less markedly than the breath.

We then made trials of terpinol in two orders of complaints, pulmonary catarrh and affections of the urinary passages. As might have been foreseen, it was in pulmonary catarrh that we obtained the best results, since it is chiefly by the pulmonary surface that terpinol is eliminated. The sputa become more fluid, their bad odor disappears, and expectoration is facilitated. In affections of the urinary organs, the results have been almost nil. As a diuretic and modifier of the urine, it has shown itself very much inferior to turpentine.

So that if we were to attempt to classify these three substances, turpentine, terpine, and terpinol, according to their therapeutic effects, we should say that for the catarrhal affections of the bronchi, terpinol deserves the first place, and turpentine the last, while in the case of catarrh of the urinary organs, the order is exactly the reverse. This completes what I have to say at present on the subject of new pulmonary medications and antiseptic medication.

ORIGINAL ARTICLES.

PHYSIOLOGICAL STUDIES OF THE KNEE-JERK, AND OF THE REACTIONS OF MUSCLES UNDER MECHANICAL AND OTHER EXCITANTS.

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(Concluded from page 173.)

Faradic electricity. A moderate current (short circuit, poles four to five inches apart), sufficient to move muscles, without pain, was used on the thigh, feet, arm, or hand, with the result of increasing k.-j. A current violent enough to give rise to pain and muscle-cramp sensations, or the abrupt use of a wire-brush on dry skin increased the k.-j. powerfully. The latter experiment—*i. e.*, the application of the wire-brush—produced almost as marked an effect on the k.-j. as anything that we tried, and left the skin so sensitive that a light touch at once increased k.-j.

Galvanism. This gave far more interesting results. Ten or twelve cells of an active zinc and copper battery caused slight but distinct burning sensations when placed on the skin three inches apart. Thus used anywhere on the leg struck, the opposite limb, the arms, hands, back, or flanks, they increased the k.-j., or, when they did not, the addition of five or six cells insured this result. In these short circuits the direction of the current seemed of no moment; but it was of importance to make and break the circuit to get the most marked result. This was effected by applying the two poles at once to the skin.

Galvanism to head, back, etc. The startling results obtained by the coincident use of knee-tap and currents through the head appear to open new paths of investigation. A great number of these experiments have been made by the authors, with the aid of Drs. J. M. Taylor, S. C. Wood, T. R. Neilson, W. J. Taylor, and G. Hinsdale. As they involved the passing of powerful currents through the brain,

every neurologist will understand the risks and the discomforts to the physicians who subjected themselves to these experiments. We may add, that persons are sometimes met with who feel very little vertigo or distress from powerful currents through the head, and who yet give good reactions as regards the influence these currents exert on the k.-j.

It will be, of course, needless to state all of our observations; of necessity, there were many failures, and the whole investigation should lead to laboratory study on animals, from which more accurate and more clearly explanatory results may be looked for. Their influence on the therapeutics of electricity seems also to be promising.

The subject being placed at rest on a lounge, with one leg on the crutch-rest, or held up in a loop, one pole of an open circuit of twelve cells is placed on each temple. An assistant has on the floor an apparatus enabling him to change the direction of the current, and to make or break circuit abruptly. A second assistant taps the tendon at intervals of three or four seconds. The assistant who controls the current watches his chance, and, without notice, makes and breaks circuit. Under these circumstances making circuit causes, of course, subjective sensation of light, some muscle movement of the temporals and occipito-frontalis, and more or less vertigo (fifteen cells or fewer), with notable increase of k.-j. This experiment always succeeds, but, in some subjects, a larger number of cells must be used. The effect wears out after a few repetitions. Breaking circuit causes little or no increase of k.-j.

The same experiments were made with the poles over the leg centres, or with one on the temple and one behind either ear, or with both behind the ears; but although the latter caused most vertigo, and all gave increase of k.-j., none gave as remarkable a result as when the two temples were within the circuit. This may perhaps be due to the thinness of the temporal bones or may await some more satisfactory physiological explanation.

Polar effects of galvanic current. To test this, the subject, as before, was placed on the lounge and the positive pole was held on the temple, while the negative was placed on some indifferent spot, on the clavicle or on the hand. With ten cells, but little sensation was produced at the positive pole, and on making and breaking the circuit no effect was produced on the k.-j. When a greater number of cells were used, the sensations of burning and pricking became much more marked under the positive pole, and the k.-j. was reinforced. On moving this pole about the temple certain regions were found which gave more scalp pain than others, and making the current at these points gave the most reinforcement to the k.-j.

A very different result was found to follow the placing of the negative pole on the temple. In this case a marked increase of k.-j. was seen, even with currents that gave no results with the poles reversed, and when thirty or thirty-five cells were used the effect was proportionally greater.

The sensations experienced were entirely different with the two poles; the first gave the most scalp pain, while the second gave an indescribable sensation within the head. These results were obtained whether the tendon on the same side or on the other was struck. Not so marked a result was obtained when the positive or negative pole was placed over the leg centres, as on the temple.

The effect of galvanism to the head is so decisive that it is difficult to explain it as being merely the result of a combination of influences, and yet it may be that it is so active because it affects at one and the same time, taste, sight, and general sensibility, and also gives rise to motion.

Galvanism and muscular effort combined. The same observations were made with the addition of violent and abrupt muscular effort. In this case as passivity is needless, the subject himself makes circuit either with the free foot or hand, while he strongly closes both hands. Of course, he watches the fall of the hammer, or, in case of constant excitations by frequent knee-taps, may neglect to do so. In either case coincidence of patellar blow, making circuit, and muscular effort gives the largest amount of increase of k.-j. in any way obtainable.

As to the next observation, it must be said that it is often difficult. It succeeds best with a fresh man in the morning, and has been made on the ignorant and unprepared as well as on ourselves. It succeeds to-day and fails to-morrow. In one instance it failed with four persons at nine P.M. of a warm, moist relaxing day, having succeeded before and since with at least two of them. As it demands the most powerful current a man can bear, it is needless to say that we hesitated to repeat it often. Indeed, in one or two cases, headache and vertigo, lasting an hour or two, followed it.

With the individual seated or supine (thirty to seventy cells) current through temples. Violent synchronous closure of both hands. Knee-tap. Very great increase.

Same conditions. A blow on the *tibia alone*, quite below the tendon, coincident with making current, caused distinct k.-j. Then the leg was steadied by a hand on the calf, to prevent swing, and the same phenomenon was seen. Next the muscles in front of the leg were tapped sharply, and a k.-j. obtained. These effects were absolute, and were verified over and over. They can be had only three or four times, and then not again for some time.

It seems clear that a combination of strong galvanization of the brain with violent voluntary action is capable of making the muscles as sensitive as they sometimes are in disease, and that under these circumstances we get response to such milder forms of stimulation as a tap on the tibia.

The most probable explanation of this remarkable phenomenon is that it is due to the imperceptible stretching of the quadriceps muscle by the blow on the tibia. In cases of spastic paralysis where it is obtainable with the greatest ease by the slightest percussion of the tibia without the aid of combined muscular movements elsewhere, or electricity through the head, if an assistant slowly extends the leg while the operator steadily taps the tibia, the k.-j. is not observable unless the blows are delivered with a considerable increase of force, because the forward

movement of the leg neutralizes the influence of the backward impetus given by the blow; a blow forward on the internal border of the shaft of the tibia does not produce the k.-j. This experiment could not be verified on a healthy subject, as this form of k.-j., the product of voluntary motion and galvanism, is slight and disappears so soon. The observation shows, however, how enormously the k.-j. is increased by the combined influences mentioned.

The "front tap contraction" described by Gowers, may also be explained in the same manner. To elicit this symptom the foot is pressed up until the calf muscles are tense, the leg being extended on the thigh with the calf resting on the operator's knee; a tap is now delivered upon the anterior group of muscles, or on the tibia, an imperceptible pull is thus made on the tendo Achillis as the result of the slight downward movement of the leg which is followed by an answering jerk of the calf muscles.

This phenomenon has heretofore only been observed in disease, but we have succeeded perfectly in producing it in health, by the conjoint use of galvanism through the head and violent voluntary movements of the arms, and also by the latter conjoined with the electric wire brush. We attempted to produce an ankle clonus in the same manner, but failed.

Galvanic currents to head with sensory stimulation to skin elsewhere. The use of head currents with pinching or freezing of the skin gave a larger addition to the k.-j. than did either alone.

Galvanism to spine. With subject at rest in a reclining chair, or lying on his side on a lounge, or seated, one pole was placed on the first cervical vertebra, and the other on the last lumbar; descending current thirty to seventy cells, caused moderate increase of coincident k.-j.

Ascending current gave great increase of k.-j. The best results were had with interruptions which were not very abrupt. As there are pain, flash, taste in the mouth, both here and in the case of the head muscle movements, it is difficult to be sure as to the mode in which the current acts; certainly neither direction of current lessens the jerk, and the phenomenon of increased k.-j. seems to have relation rather to the making than to the rupture of the galvanic circle. It were also as well to add that the effect of these long circuits demands for its full expression subjects of unusual sensitiveness. It frequently fails entirely. Continuous moderate currents up or down the spine do not add to k.-j.

The time element. In these experiments it soon became evident that in order to obtain the best effects, and occasionally to obtain any at all, a certain relation in time must be observed between the muscular act, or making of the circuit, and the tapping of the tendon. In the foregoing pages the expression, coincident tendon tap, is often used, and the method of completing the circuit was by a pedal or by an electric button which was pressed by the thumb, and coincided with the tendon tap as nearly as was possible with such a coarse movement. In order to make the circuit practically coincident, an electric hammer was made, so that the lightest tap with this upon the tendon sufficed to close the circuit. In repeating the experiments with this, it was found that double the number of cells could be borne, through the head or up and down the spine, as the circuit was very abruptly made and broken, and the interesting point is, that with this we failed to reinforce the k.-j. It therefore seems that the muscular action, or circuit-closing, must precede the tap, in order to reinforce it, by a period which is, as yet, undetermined, and which needs for its determination careful work in the laboratory. When a series of very quick taps, ten or twelve per second, on a tendon were employed, thus constantly exciting the muscle, it was possible at times for the subject to appreciate the interval mentioned. When the experiment of increasing the k.-j. by the application of the secondary current and the wire brush before mentioned was employed, a large portion of a second elapsed between the application of the brush to the forearm, and the reinforcement of the k.-j. This was perfectly patent to all observers, and particularly so to the subject experimented upon. It is also entirely clear, that the effect of volitional reinforcement lasts some little time, certainly in some people quite a second.

Skin reflexes. These being unquestioned reflexes, it became desirable to know if they obeyed the laws of reinforcement. Among them the cremaster reflex is the most available, and, as regards this, we think it clear that it is not increased by distant muscular acts, nor by sensations, as of pain.

Direct muscle reactions. In examining the k.-j. we were naturally led on to a remarkable series of discoveries in regard to the behavior of muscles when mechanically stimulated by a blow. The capacity of the muscle to respond to a blow varies with the muscle and the subject. It will, we think, be found that in health those persons give the best muscular response in whom the k.-j. is best. In some men a painful blow is needed to move the muscle; in others, the least tap of the hammer calls out motion. Usually the rounded conical end of our rubber percussion hammer gets the best response; but whatever is used, we make a local depression in the muscle as we strike and stretch the fibres abruptly over a limited area. What we thus do has some resemblance to the universal pull on the muscle fibres made by a blow on a tendon, but the direct muscular blow is far more rough and violent, and is a coarser and more local stimulation. The stretched muscles contract as the hammer leaves the part.

Relation to voluntary motion elsewhere. Place the bare, prone arm of a sensitive young person at rest on a cushion, with the hand dependent; strike the muscles on the back of the arm or the long supinator, so as just to get motion of the hand or of the muscle without the hand; then cause the subject to flex the other hand strongly: the muscle reaction will be at once reinforced notably. If we repeat this experiment by striking the extensors of the leg, and use violent effort in closing both hands, we shall get, in good subjects, a distinct k.-j.

All the motions which reinforce k.-j. can be shown to increase the mechanically evolved muscular reaction.

To swallow, cough, laugh, count aloud, or strongly

act with the limbs, hands, or feet, reinforces the effect of a tap on the muscle. Even the slight act of winking decisively is competent to do this.

Tension behaves somewhat as it does with the tendon-jerk. With the muscle in full relaxation we get fair results. With slight passive tension the blow acts better, and over a larger area, for obvious mechanical reasons. With extreme tension we utterly fail to be able to cause movement.

Effect of one direct muscle reaction on another. As one k.-j. does not increase another, so neither does one muscular reaction from a direct blow increase another produced at the same time; neither does the k.-j. increase the direct muscular reaction, nor *vice versâ*.

Sensation and galvanism. Rhigolene freezing and remote or near sensations (pain) reinforce direct muscle reactions (m.-j.), but not nearly so well as they do the muscle reactions from a blow on the tendon (k.-j.). Galvanism through the head increases the direct muscle act as it does the k.-j.

Points of resemblance between the direct muscle acts (muscle-jerk) and the knee-jerk.

These phenomena have many points in common, the differences are chiefly of degree, and are partly due to the fact that in the k.-j. we have a whole muscle in movement and in the muscle-jerk but a small fraction of it.

The knee-jerk seems to depend for its existence on the presence of muscular tone due to the connection of the muscle with the spinal cord, while the direct muscle reaction depends upon the presence of the muscular irritability which exists independently of any immediate connection with the spinal cord, but may be increased by toning influences coming from it.

The tap on the tendon is a distinct generalized sharp pull on the whole muscle, and is a somewhat delicate excitation easily affected by neural changes. The direct muscle blow is a strong, positive local stimulus. It may be left in existence after the knee-jerk is lessened or lost by disease. Usually what increases the one adds to the other, as we see in spastic palsy. In a case examined lately, a young man in absolute health, without a trace of disease, athletic and a good dancer, there is absolutely no knee-jerk and also no muscle act under hammer in the thigh, neither can these be called into action by any coincident act, electricity, rhigolene, etc., although in the arms the muscle-jerk is perfect for all tests.

It seems difficult to escape the conclusion that the two sets of phenomena are but varied forms of expression of one normal muscular property, dependent for its integrity upon various nutritive conditions, and for its grades of excitability upon certain relations of the muscle to normal spinal centres.

Inability to reinforce electrical contractions of muscles by the means which add to knee-jerk and muscle-jerk. It was natural to presume that if k.-j., and the muscle response to a tap, could be increased by remote movements, and sensations, and galvanism, that electricity, the third means of exciting motion, would follow the same law. This is not so; no form or degree of muscular movement obtained through galvanism or faradism could be increased by anything we could do; heat, cold, galvanism to head with volitional movements, all alike failed. It is hardly needful to detail these observations; they were varied, and made on several persons in whom it was easy to get the reinforcement of k.-j. by volitional acts or pain. The cause of this exception is not clear. It seemed possible that electric currents might interfere with the passage of the more delicate tone waves. This we tested as follows: a strong or moderate faradic primary current being allowed to traverse the supinator longus, the muscle was struck lightly with the flat end of a percussion hammer, so as to get a slight direct response; then, violent contraction of the other hand was still found able to reinforce the muscle-jerk. There are obvious fallacies in this too promising experiment, for it is impossible to be sure that all of the muscle is, so to speak, electrically occupied, unless we use an excessive current, and that interferes with the experiment, by causing too much contraction. There is, however, an interesting observation which anyone may easily repeat, and which gives one a distinct impression that electrical possession of a muscle makes its volitional acts fatiguing or difficult. Let the arm rest on a cushion, prone, faradize the extensors, so as to contract them only partially, now will to extend the hand; there is at once felt to be some unusual need for effort, some mysterious impediment. It takes an extra effort of will to use the muscle through which runs a faradic current.

It may be, therefore, that nerve and muscle texture, when under the coarse influence of electric stimulation, are less accessible to gentler tone waves.

Reinforcement of volitional acts by other volitions. If muscular movement, caused by a blow or a tap on a tendon, be capable of increase by willed motion in another part of the body, it seemed to us that one act of will should thus increase the effects of another act of will. This has been stated to be the case by Quetelet.[1] and denied by G. Stanley Hall and E. M. Hartwell.[2] Our own experiments incline us to believe with Quetelet. Muscles already fatigued by previous efforts seemed to show the most reinforcement. We hope to investigate this subject further.

Résumé and conclusions. The k.-j. varies in health, it may be exhausted by too much use, and may increase from frequent excitation.

All volitional acts, if strong enough, may increase the k.-j. of either leg, and even such small acts as winking, etc., are competent to do so under favoring circumstances.

Weak innervation of the crural nerve increases, and strong innervation of the same, prohibits k.-j.

All sciatic innervation increases k.-j.

Volitional reinforcement lasts for an appreciable time after volition ceases.

Continued violent muscular acts, as of both arms and hands, at last enfeeble the k.-j., and this enfeeblement lasts for an appreciable time.

Passive tension is not essential for the production of k.-j.

Moderate tension mechanically favors it.

Extreme tension destroys it, even in spastic cases,

[1] Sur l'homme et le développement de ses facultés, par A. Quetelet, Bruxelles, 1830, vol. ii. pp. 70, 80.

[2] Bilateral Asymmetry of Function, Mind, No. xxxii.

and this is probably mechanical in part, but also, and to a large degree, physiological.

An act of will directed to a part which is functionally inert, or to amputated parts, reinforces k.-j. Hence it is not the muscular motion which is the essential factor.

Strong or weak stimulation of one sciatic in an etherized animal, intensifies the k.-j. of the other leg; pressure upon the sciatic in man, causing pain and numbness, diminishes the k.-j. of that leg.

Elbow-, ankle-, and jaw-jerks obey the same laws as the k.-j.

One k.-j. does not reinforce the other.

Mere touch has no effect on k.-j. All abrupt impressions, as of pain, heat or cold, anywhere on the skin, increase k.-j.

Gustation has no effect on k. j.

Violent optical impressions, in sensitive cases, increase k.-j.

Nitrite of amyl has no effect on k.-j.

Etherization, if profound, abolishes the k.-j. in dogs, has less effect in rabbits.

All short faradic currents, anywhere, if strong enough to move muscles, increase k.-j.

The wire-brush, with faradism on the dry skin, is one of the most effectual of all means of addition to k.-j.

Short galvanic currents, not strong enough to move muscles, give, under certain conditions, marked increase of k.-j.

Galvanism to temples especially, but also to other regions of the head, gives large reinforcements to k.-j.

Making circuit is more effectual than breaking, and these effects soon wear out.

The negative pole to temple gives greater and more constant increase of k.-j. than the positive in same postion.

There is more effect on k.-j. from pole on temple than over leg-centres. Effect the same for either k.-j.

Galvanism to temples, with violent synchronous muscle acts, very greatly reinforces k.-j.

Long ascending spinal galvanic currents give good increase of k.-j.; descending, far less.

Moderate constant currents to spine do not reinforce k.-j.

The skin-reflexes (cremaster, abdominal) are not reinforced by muscle acts or by pain.

When the belly of a muscle is struck, the resulting contraction obeys all the laws of reinforcement which apply to the k.-j. Tension has upon it much the same influence as on k.-j. One muscle-jerk does not reinforce another.

The movement caused by electricity seems incapable of reinforcement.

Tension lessens the effect of even quite strong faradic currents as to pain and motion.

Well-known facts and the researches here stated, lead us to believe that the knee-jerk and other like responses to tendon taps are direct muscular acts; they cannot exist without that spinal contribution known as tone, which is capable of increase from a variety of causes. These muscle responses to a pull on the tendon cannot be reflexes, for the latter are inhibited by violent sensory stimulations, which are here shown to increase the k.-j. The true skin-reflexes are incapable of being reinforced by distant volitional muscular acts like the k.-j., and have a time far greater than that of the k.-j. The two groups of muscular replies to forms of irritation, therefore, differ radically. There is no reason to believe that the aid given by moderate tension to the knee-, ankle-, elbow-, and jaw-jerks, is other than mechanical; besides, it is not essential. As regards the k.-j., tension has previously been shown to be unessential. The jaw-jerk can be had when the part is without tension and is being supported by the hand. A tap on a tendon mechanically affects the tissues lying within the whole of the muscle case, but whether through the nerve ends, or more directly, is difficult to say.

The tendon tap is a more delicate mode of stimulating the muscle to act than is the mechanical blow upon its body, it is also more competent to influence the entire muscle.

The direct blow on a muscle is abrupt, violent, and local, and has two results. By abruptly depressing the muscle it makes on the muscle fibres a pull, which is limited, and to which they respond by contractions, and at the spot directly hit the immediate violence of the blow has the effect of causing an abrupt mounding of the fibres, which rise rather slowly as the longer primary fibrillar contraction ceases. This small firm elevation is not easily observed in firm muscles or in health, except in thin subjects or over bones; it lasts for some seconds and slowly disappears.

It is seen from these researches that the muscle responds to various excitations by virtue of its intrinsic irritability and its tone. Both of these vary, and their sum, when the health is highest and the body at its best, represents capacity to shorten under nerve influence, and other less natural excitations. The muscular irritability depends for its character and existence on nutritive influences. The tone is merely what might not inaptly be called tuning of the muscle. It is a final preparation for volitional excitation. We have already said that efferent spina excitations sustain its constancy, and from our own observations it seems clear that incessantly tone waves are flowing from the spine, set in motion by every sensation, and by all muscular volitions however remote.

Hence it is that when by section of nerves, disease, or other cause, we cut off the efferent influences, tone is lost and the most delicate of muscle tests, the response to tendon taps, is synchronously abolished. Clearly something in the muscle itself is the most potent excitor of tone waves, as is shown by the fact that section of the sensitive roots so affects them as to put an end to the k.-j.

After cutting the crural nerve, although tone is lost, the muscle still competently replies to the violent excitation of a blow in the peculiar manner described If now the animal be killed, circulation ceases, an with this nutritive damage come lessened respons to a blow and greater humping up of the fibres at the point struck. This latter phenomenon seems to increase for a time as the muscle gets weaker, and

are thus reminded of the fact that in the feeble muscles of thin, phthisical people it shows so remarkably well.

Next the long contraction from a direct blow becomes less, and soon only the shorter is seen. Then this too is lost. At this stage of enfeeblement, induction currents still powerfully affect the fibres which all other excitants fail to impress.

The application of the facts we have discovered to clinical research remains to be made, but assuredly they widen the field of useful possibilities in the domain of symptomatology.

It is very difficult to explain the fact that electricity, sensory impressions, and distant voluntary muscle acts increase the knee-jerk and the response to the muscle blow. If we conceive of a series of inhibitory centres extending from the mesocephalon all the way down the cord, and infer that all the agents mentioned are capable, by more or less paralyzing these centres, of releasing the active reflex groups below them, we shall be able to comprehend that the centres thus set free may, by increasing tone, give to the muscle a suddenly enlarged capacity to respond to the tendon taps or the muscle blow.

Nearly all of the facts with which we are concerned may be explained by inhibition organs and the effects produced upon them. On the other hand, it is equally conceivable that whenever a sensation reaches the cord or brain, or both, an overflow may occur which shall, by increasing the excitation of the centres, be felt throughout the body and reinforce any organs chancing to be synchronously otherwise excited from without. Under this view we conceive of the nervous force as not confined entirely to the direct paths between the centres and the muscle to be moved, but as overflowing so as to pass through numerous ganglia, adding a certain small increment to their effects when in a state of such activity as the spinal toning centres must be at all times. The tone centres thus stimulated send out a higher wave of excitability to all the muscles, and if at the time this reaches a muscle that muscle is being excited by a tap, there is an increased response.

Several facts tend to support this theory of overflow. The awkward movements of young children, and the associated movements accompanying many of our everyday acts which require great effort, may be thus explained. In excitable conditions of the spinal cord associated movements are common. Writer's and telegrapher's cramp are examples in point.

Lauder Brunton's theory of the coincidence and interference of nerve waves, as increasing or diminishing the resulting motions, as waves of light and sound are known to be influenced, may in the light of further knowledge be competent to explain more precisely the manner in which overflow acts as a reinforcing agency.

Our discoveries as to the various influences which affect the direct and indirect muscle reactions should, we think, be regarded as distinct additions to physiological knowledge. The brief speculations founded upon them may be more or less correct, and until we have examined their relations to the domain of pathology it will be difficult to decide more positively on their causes.

PERFORATIVE ULCERATION OF THE CÆCUM;

FORMATION OF FECAL ABSCESS, COMMUNICATING THROUGH THE FEMORAL SHEATH WITH THE THIGH; OBLITERATION OF THE ABSCESS CAVITY; RECOVERY.

BY GEORGE T. McKEOUGH, M.D., M.R.C.S. ENG.,
OF CHATHAM, ONTARIO.

THE following brief history of a case of typhlo-enteritis I have thought of sufficient interest for publication, not only on account of its happy and rare, if not unique, termination, but as presenting unusual symptoms throughout its evolution.

F. B., aged 47, French Canadian, blacksmith by trade. He has a good family record; both his father and mother are still living. There is no history of tuberculosis or other hereditary disease in his family. He has had several attacks of intermittent fever at different periods of his life, otherwise has always had exceptionally good health. He is married, and the father of fourteen children, seven of whom died in infancy, three of supposed tuberculosis; a daughter has had "sore eyes" for several years, and another has just recovered from a large abscess of the thigh.

His late illness began Saturday, August 9th. He had been feeling as well as usual during the day, ate a hearty breakfast and dinner, but had no desire for supper, and had a "bad taste in his mouth," for which he took a dose of "salts and senna" at bedtime. During the night he was very ill, vomited frequently, and was thoroughly purged. The following day he felt very unwell, suffered from headache, nausea, and occasional vomiting, and sent for a physician, who informed him he had a bilious attack with fever. The ensuing day he travelled 300 miles; was very weak, but there was no other marked symptom. He consulted me Aug. 12th, complaining of muscular weakness, languor, headache, pains in his back and limbs, and failure of appetite. The tongue was coated; pulse 80, and temperature 99.6° F. There was no complaint of abdominal symptoms, nor had there been any epistaxis. He was ordered a quinine mixture, to remain quietly at home, and to restrict himself to a milk and water diet.

Two days subsequently (Aug. 14th) I visited him, and found symptoms had not improved; suffered from severe frontal headache; general weakness, malaise, and some soreness over his bowels, which were slightly tympanitic; pulse 89, temp. 101° F. He was ordered to bed and the quinine continued, my diagnosis wavering between typhoid and remittent malarial fever.

Aug. 16.—P. M., temp. 102° F., pulse 80. He has a dull abdominal expression, sunken cheeks, intellect somewhat clouded, breath foul, resembling the peculiar, heavy, offensive breath of typhoid patients; still complains of headache, but its severity has abated; slight soreness in the abdomen, and some pain in the region of his right hip, but its precise locality he is unable clearly to define. His bowels are open, but there is no tendency to diarrhœa. There is neither tremor nor rose-colored rash to be seen.

20th.—During the past few days his temperature has varied from 100° to 101° F. in the morning, to

102 to 103° F. in the evening; his pulse has never exceeded 90 per minute. The headache has ceased, but he has complained of great pain in the upper part of his right thigh, the pain being most severe along the line of Poupart's ligament. Pressure increases the pain, and the tenderness seems greatest at the point where the femoral sheath emerges from under the ligament. There is some abdominal tympanites and a fulness which is uniformly distributed, but no hardness or tenderness on pressure in any part of the abdomen. After careful palpation I thought increased resistance was slightly more marked in the right inguinal region than in the left. The right thigh is flexed, as is usual in typhlitis, and complete extension cannot be endured. Movements of the entire limb in the flexed position, within a limited area, do not augment his sufferings, nor does a rap on the heel increase the pain. The manipulations were undertaken to detect or eliminate any joint affection, the cause of the pain being obscure. He reclines upon the painful side, and any attempt to move him from this position causes unbearable suffering. Opium had to be administered freely, hot fomentations were first applied, afterward a few small blisters to the painful parts. Quinine and dilute nitro-muriatic acid were also given. The opium did not cause constipation.

26th.—The pain and tenderness are subsiding, opium not being now required, but the thigh, especially the upper third, has enlarged to nearly double the dimensions of the left limb; to a less degree, the lower two-thirds has also increased in size; but below the knee there is no swelling. There is neither redness, nor any palpable indication of an abscess pointing; deep pressure along the course of the femoral vessels in Scarpa's triangle is painful; he still keeps the thigh flexed, and lies partially upon the right side.

For a day or two past he has had a diarrhœa with ochre-colored dejections, which he regards as brought on by drinking heartily of beef-tea, the diarrhœa ceasing on a return to milk diet. This occurrence revived, in my mind, the idea of typhoid fever; it having been pointed out by Brieger,[1] that the typhoid bacilli when cultivated in a peptone solution produce no poison, but when cultivated in an infusion of meat, induce its decomposition, with the production of two poisonous alkaloids, both of which cause diarrhœa. This probably accounts for the clinical fact that beef-tea and its congeners are so frequently inadmissible in typhoid fever, developing diarrhœa when that symptom does not exist, or increasing such a condition if it be present. With this exception, there was no pronounced disturbance at any time of the function of the alimentary canal. There are none of the ordinary symptoms of typhlitis or perityphlitis present, such as fulness, tenderness, pain, hardness, or the presence of a tumor in the cæcal region. His temperature varies from 100° F. A.M. to 102° F. P.M., pulse 80. There are neither chills, sweats, rash, tremor, nor are there sordes upon the teeth.

Sept. 6.—The swelling is gradually subsiding, and tenderness likewise, although there is a feeling of fulness along the course of the femoral vessels in the upper part of the thigh, and severe pressure causes pain. Cannot fully extend his thigh as yet, but lies on either side. No desire for food. Temperature still elevated.

12th.—I had not seen the patient for several days until to-day, when on examining his leg in conjunction with Dr. T. K. Holmes, a tumor the size of a small orange was seen about the junction of the upper middle third of the thigh on its inner and anterior aspect. The lump fluctuated, was tympanitic, and pressure caused it to subside with a gurgling similar to that heard in the reduction of a hernia. Allowing the limb to hang down or pressure upon the abdomen caused its reappearance, while alternate pressure upon the tumor and abdomen produced loud gurgling sounds. The air could be clearly felt passing to and fro. Upon elevating the limb and using gentle pressure, the tumor almost entirely disappeared, leaving, however, a few hard irregular masses about the size of acorns; some small, diffused, ill-defined masses could also be felt in Scarpa's triangle. Temperature 100° F. Pulse about 100. The diagnosis was now definite: there was evidently a perforating ulcer of the cæcum, doubtless situated in its posterior wall. which, according to Bartholow,[1] is the most common position for its occurrence; out of fourteen cases analyzed by him, in twelve the accident occurred in that portion of the gut not covered by peritoneum. A fecal abscess was the result, the contents of which must have followed the course of the iliac and femoral vessels passing down between the peritoneum and iliac fascia, beneath Poupart's ligament, being confined probably to the sheath of the vessels until the resistance became so great as to cause pointing toward the surface. Inquiry was made as to the possibility of the patient having swallowed any foreign body previous to his illness, but the result was negative.

Pads of absorbent cotton were placed about the upper anterior and inner portion of the thigh, extra pads being laid along the course of the vessels, and a flannel bandage applied from the foot upward to the thigh and abdomen, pressure being firm but equable. To remain in bed with leg elevated, and the strictest quiet to be maintained. Milk or buttermilk for diet, and a mixture containing nitro-muriatic acid and tinct. calumbæ was given.

18th.—He is gaining strength, suffers no pain, sleeps well, appetite improving, bowels open daily, and he is in good spirits. In reapplying the bandage, faint gurgling sounds were heard when the bandage reached the upper fourth of the thigh.

Oct. 1.—His temperature has been normal for the past few days, his appetite is good, and he is renewing strength daily. He was permitted to leave his bed to-day, and to use crutches. Not the slightest gurgling was heard in applying the bandage to-day, the small hard masses had disappeared, but a decided thickening could be felt along the inner side of the femoral vessels, for about an inch and a half below Poupart's ligament.

[1] Practitioner, August, 1885.

[1] American Journal of the Medical Sciences, October, 1866.

17th.—The bandage was omitted to-day; the thickening near the upper part of the femoral sheath was found to have disappeared; the right limb is greatly emaciated, and out of all proportion to the remainder of the body.

He gradually gained strength, used crutches for two or three weeks on account of the feebleness of the right leg, and for some weeks after discarding his crutches he favored this leg, limping slightly when walking. He was seen November 28th, and seemed quite recovered, and almost as strong as ever, having returned to his trade. The termination of this case was certainly a fortunate one, and, I think, may be in part attributed to the absolute rest maintained throughout the course of the disease, and to the avoidance of purgatives, two essential factors which cannot be too rigorously attended to in the treatment of all obscure abdominal affections of an acute character.

NOTES OF THIRTEEN CASES OF TUBERCULAR MENINGITIS.[1]

BY J. H. MUSSER, M.D.,
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ALL of the cases were observed in private practice, hence the lack of detail of symptoms, such as temperature, etc. They occurred in a period of six years. Nine of them were in the writer's private practice, two in institutions under his care, and two in the practice of medical friends. It may be considered a disease of frequent occurrence, and is more commonly met with than many other diseases of recognized frequency, as, for instance, forms of liver disease The nine cases occurred in a practice ranging from 50 to 400 families yearly, during the six years. For every case of tubercular meningitis, the writer has had twenty-five of phthisis. During the same period one case each of tubercular peritonitis and intestinal tuberculosis have been under his care. In later years the disease has been less frequently seen, corresponding with the social improvement of the practice. In the first half, six cases were observed. In the latter half, the remaining ones. The mortality table of the "Homes" to which the writer has been physician, present some interesting features in this connection. In one Home of 180 boys, aged from three to sixteen, and 30 adults, but three cases of tubercular meningitis occurred in five years. In a Home for 24 colored children of both sexes, mean age seven years, the disease was not observed in four years In a third Home for children of both sexes, about eighty in number, in the records of twelve years, no death occurred from this disease. During the same period of observation of these nine cases, five cases of hydrocephaloid disease, one of cerebro-spinal meningitis, and two of syphilitic meningitis were observed.

Causes: Seven of the cases were males, and six females, showing that sex exercises no causal influence. The ages ranged from seven months to fourteen years in twelve cases. One was thirty-two. Six of the patients were under five years, four between five and ten, and two between ten and fifteen. The ancestors of nine had tuberculosis in some form. In two other instances the children of the same generation had some tubercular affection. In only two cases was there no antecedent or coincident history of tuberculosis in the family. One of the patients, aged seven months, was nursed by a mother whose tubercular disease antedated her pregnancy.

The hygienic surroundings in the large number of cases were quite fair. Two alone could be pronounced bad. One child had been weaned early in life, and improperly fed afterward. The previous health of all save one or two was bad. Some remote local inflammatory foci, either of simple or specific nature, could be determined. In one, aged fifteen months, the bronchial and mesenteric glands, after a whooping-cough and diarrhœa, were diseased; asthma and bronchitis, with enlarged bronchial glands, no doubt, preceded in another; hip-joint disease, suppurating cervical lymphatics, chronic bronchitis, and phthisis, respectively, preceded in four cases. Very poor health in one instance, and "weak" lungs in another, also preceded. In one, the health had apparently been good; in two the state of the health was not noted. Exposure to the sun was thought to be the cause of the twelfth, but the lid was always fragile, and had diarrhœas. The nursing baby completes the list—she was always delicate.

Clinical Course: In general, it may be said to be irregular. In six cases the periods of invasion, excitation, and depression could be traced. In two instances the stage of invasion or the premonitory symptoms was absent entirely. In the other cases the stages were "mixed."

The following summary indicates the mode of development of the entire series. Case I. was a girl aged sixteen months; antecedent cause, whooping-cough and tabes mesenterica, slight general spasm, followed in a few hours by convulsion of right side of body with aphasia. In Case II., boy aged four, with asthma, etc., there was loss of flesh for four weeks, intermitting headache ten days, vertigo three days, was peevish and restless at night. Case III., girl aged ten years, had for one year headache and vertigo, with extreme emaciation (cerebellar tumor). In Case IV. there were loss of flesh, debility, restlessness and poor appetite for several weeks. The course of the fifth was not known, while the sixth had been ill ten days definitely; for some time loss of flesh with pain in the left temple, sleeplessness and constipation being present. Sharp paroxysmal headache tormented the seventh case, a youth of nine, for three days prior to the meningitic explosion. Until twenty-four hours before very active symptoms occurred, the eighth case, an infant under two years, was considered in perfect health. Prolonged lassitude, fretfulness, and some emaciation, preceded the illness of Case IX., a boy of eight. For four weeks the tenth case, a precocious little girl five years old, suffered from symptoms not unlike malaria—languor, emaciation, fretfulness, irregular intermitting fever, restlessness at night, poor appetite, without vomiting or constipation. The eleventh case had phthisis, but observed that his customary hectic had quitted him two weeks before the development of headache and vertigo, which symptoms antedated the active brain symptoms

[1] Read before the Philadelphia Neurological Society, January 25, 1886.

by four days. The twelfth case did not thrive as a nursing baby should, and vomited frequently. A convulsion was the first warning of cerebral trouble. The thirteenth case, a little girl, lost appetite, was peevish, slept poorly, was feverish and became emaciated for three weeks before the cerebral symptoms developed. She had lymphatic enlargement in the neck and abdomen. Emaciation, debility, fretfulness, night-restlessness, irregular febrile movement, disorders of the gastro-intestinal tract and headache were, therefore, the chief premonitory symptoms in these cases, emaciation being the most frequent and most marked.

An analysis of the phenomena of the first and second stages would be tedious and without practical value. Reference in the succeeding notes will be made to some salient groups of symptoms, present more or less in both stages, and to peculiar manifestations of common symptoms. *Headache, motor* and *sensory irritations,* and *palsies* occurred in all the cases. In a few, the *headache* was distinctly intermitting. The *spasms* and *palsies* of groups of muscles were irregular in respective cases, as to order or frequency. Hourly change in the state of the muscles was common, and the same may be said regarding sensation. Not only does this apply to alterations of function of spinal but also of peripheral nerves. Convulsions (partial, unilateral, or general), delirium, and coma were present, but presented no peculiar feature.

Special senses: Total blindness was early in one case; impairment of vision in five; optic neuritis was recorded in three. The state of the pupils was not of special import—in one instance there was irregularity in size in the second stage. In the first stage they were not affected, save contracted in one instance, and fixed, in a dilated state, in another. Dilatation was the rule in the second stage. Nystagmus was observed in one case. Purulent conjunctivitis occurred in eight cases, in the second stage usually, and in two instances was unilateral. Ptosis was present in only one case.

In five instances local erythema and general flushings were noted. An urticaria-like rash was seen in three instances. In the later stages pallor or a bluish hue of the face was observed. A unilateral mottling of the extremities was observed. Emaciation was marked and persistent in the prolonged cases, nine in all. Fever was present in the first stage in seven cases; in the second, in nine; intermitting in type, often with irregular paroxysms. Hyperpyrexia was noted in one. The *pulse* was slow seven times in the first stage; irregular or intermitting in four. In the second stage it was usually quickened, small, rapid and feeble; twice, slow and irregular. It was never wiry or corded in either stage.

Vomiting occurred but three times in the first stage; once only in the premonitory stage, and once only in the final stage. Constipation was seldom observed—three times in the first, twice in the second stage. Diarrhœa was excessive once. Offensiveness of the *breath* was very frequent and occurred chiefly in the last stage, but was so marked at first, in three cases, as to be noted. In nine instances the tongue was heavily coated. The scaphoid abdomen occurred at varying periods: once in the first stage, seven times in the second stage, while three times it is recorded absent; twice there is no record. Respiratory symptoms: first stage, irregular or Cheyne Stokes, four times, rapid twice, slow once. Second stage, Cheyne-Stokes twice, rapid six times.

Remissions of a decided character were noted twice; after the development of the most grave symptoms, a period of improvement led to hopes of recovery.

Duration: Of premonitory symptoms, unknown twice; prolonged, once; one year (cerebral tumor), once; in three cases, about four weeks; in two, ten days; in one, three days; in another, twenty-four hours; and in two the first stage developed at once.

First stage: Twelve hours, 2; four days, 2; five days, 2; ten days, 2; eleven days, 1; thirteen days, 1; unknown, 3.

Second stage: Twenty-four hours, 1; seven days, 1; five days, 3; forty-eight hours, 1; six days, 1; eight days, 1; four days, 2; nine days, 1; unknown, 2.

Entire duration: Thirty-six hours, 1; four days, 1; seven days, 1; twelve days, 2; fifteen days, 2; eight days, 1; fourteen days, 1; eleven days, 1; unknown, 3.

The difficulty of estimating the duration is evident to any one. It can only be said that a short first stage, in all the instances, determined a short second stage.

A post-mortem examination was held in four of the cases. In two the disease was largely localized, once in the cerebellar region, again over the right frontal convolutions, the presence of the tubercle causing during the life of each the symptoms due to localized cerebral irritation at these points.

Summary. From the above we learn that *tubercular meningitis* may be considered a disease (1) of frequent occurrence, in the middle and lower classes especially; (2) more frequent than other localizations of tuberculosis, except the pulmonary; (3) and much more frequent than other varieties of meningitis.

That the *predisposing causes* are *age,* and a hereditary tendency to tuberculosis. That the *exciting cause* is a focus of infection, inflammatory or "cheesy," which can almost always be found in some part of the body.

That the premonitory symptoms of note are emaciation, fretfulness, gastro-intestinal disorders, irregular fever, and headache. That the symptoms of the fully developed disease, worthy of note, aside from headache, spasms, and palsies, are purulent conjunctivitis; erythema, and other vascular changes of the skin; an offensive breath; the scaphoid abdomen; irregular fever and alterations in pulse and respiratory rhythm. Vomiting and constipation were not marked phenomena in the cases of the series. The expression of the face and the decubitus of the patient did not differ from the usual accounts. That the premonitory symptoms may be absent entirely or of very variable duration.

That the symptoms of the first stage continue six days (average); of the second stage, four and one-half days (average); and the entire duration lasts on an average ten days.

We have learned further, from the above observa-

tions, that the diagnosis can be made by attention to the following points. The age; the hereditary tendency; the presence of a caseating focus or the history of a disease likely to produce such a focus; the presence, in addition to cerebral symptoms, of two or more groups of the symptoms detailed in the preceding summary, and the appearances of the eye-ground.

We are aware that these conclusions differ, in many respects, from those presented in the text-books. They are deduced from the above series, and are believed to be substantially correct. It is to be regretted that no light can be thrown on the interesting relations of the tubercle bacillus. These studies were made before its discovery, however.

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MEDICAL PROGRESS.

The Sound Accompanying the Single Contraction of a Skeletal Muscle.—Drs. Herroun and Yeo have made a series of experiments on this subject. The sound heard on auscultating a continuously contracting skeletal muscle is generally ascribed to certain vibrations of the active tissue, of such periodicity as to give rise to a tone of some thirty-six to forty waves per second. The theory that the normal muscle sound might be said to have a relationship to a musical tone has been always used as an important link in the evidence tending to prove that normal nerve impulse is intermittent, and that continuous voluntary contraction is composed of summated single contractions, like the artificial tetanus produced by interrupted stimulations. The fact that the heart beat is but a single contraction is commonly urged against the view that the systolic sound is due to muscular tone, because it is commonly accepted that the sound produced by contracting skelatal muscles depends upon the regular variations of tension of the tetanic contraction. Their conclusions were as follows: 1. That a single contraction of a skeletal or heart muscle gives rise to motions or vibrations which evoke the resonant tone of the membrana tympani. 2. That the tone heard in voluntary contraction is no evidence of distinct or regular vibrations in the muscle, but merely of motions, regular or irregular, which produce the vibration of the membrana tympani. 3. That the tone heard in voluntary contraction is, therefore, no evidence of regular discontinuity of natural nerve impulses, but simply depends upon trembling movement due to variations either of force or distribution of stimulation. 4. That the objection to the first heart-sound being a muscular sound, because the systole of the heart is a single contraction, is not valid, since the single contraction of a muscle causes motions or vibrations which call forth the resonant tone of the ear. —*Journal of Nervous and Mental Disease*, Jan. 1886.

Resorcin in Gonorrhœa.—Letzel finds that three per cent. solutions of resorcin are sometimes irritant to the urethra, and recommends that the treatment be begun with a two and a half per cent. solution, and increased according to the tolerance. In chronic gonorrhœa four per cent. solutions are usually borne without trouble. The average duration of treatment, in acute cases, was about twelve days; in chronic cases fourteen to thirty-two days. Stress is laid upon the necessity of employing chemically pure snow-white resorcin, which is entirely colorless in solution. It is dissolved in distilled water, kept well corked in opaque glass bottles, and it is recommended that not more than three ounces of the solution be ordered in one prescription.—*Centralb. f. d. med. Wiss.*, Dec. 19, 1885.

Ratio of Increase of Height to Increase of Bulk in the Child.—Some remarkable observations have been recently made by the Rev. Malling Hansen, principal of the Danish Institution for the Deaf and Dumb, on the progressive increase in height and weight of children, 130 of whom were under his charge. Of these, seventy-two were boys and fifty-eight girls, and they were weighed in batches of twenty, four times daily: in the morning, before dinner, after dinner, and at bedtime. Each child was measured once a day. The weighings and measurements extended over a period of three years, and the results showed that the increase in the bulk and height of the body does not proceed at a uniform rate throughout the year. Three distinct periods, with some minor variations, were observed. In regard to bulk, the maximum period extends from August until December; the period of equipoise lasts from December until about the middle of April, and then follows the minimum period until August. In regard to height, the maximum period corresponds to the minimum period of increase in bulk. In September and October a child grows only a fifth of what it did in June and July. So it appears that during the autumn and the beginning of winter the child accumulates bulk, but the height is stationary. In the early summer, on the other hand, the bulk remains nearly unchanged, but the vital force and nourishment are expended to the benefit of height. When the body works for bulk there is rest for growth, and *vice versâ*. M. Hansen has observed a similar ratio of increase of bulk to increase of height in trees. In regard to the minor variations observed, it is probable that they are dependent—in part, at least—upon the external temperature, so that when this runs up there is marked increase in weight, whilst a diminution of weight occurs with a fall of temperature. M. Hansen's observations were communicated to the International Medical Conference, held in Copenhagen in 1884, and are undoubtedly of considerable importance. Similar observations have been made both by Dr. Percy Boulton (whose results were given in our columns in 1880) and by Dr. W. R. Miller, surgeon to the West Riding Convict Prison. Dr. Miller experimented on about 4000 prisoners for thirteen years, and obtained results that differ sensibly from those of M. Hansen; for he found that the season of maximum increase in weight in adults is from April to August, and the period of minimum increase in adults from September to March. Dr. Miller found the body became heavier in summer and lighter in winter, and he attributes the loss of weight to the more active excretion of carbonic acid gas in the colder months.—*Lancet*, Jan. 23, 1886.

The Synthesis of Cocaine and its Homologues.—By treating anhydrous ecgonin with benzoic oxide and methyl-iodide for ten hours to 100° in a sealed tube, Merck has produced cocaine. Substituting ethyl-

iodide, the same reaction gave him its ethyl homologue, which crystallizes from alcohol in brilliant prisms fusing at 108°–109°. Platinum chloride produces, even in very dilute solutions of its salts, a yellow precipitate soluble in hot water and crystallizing on cooling in brilliant yellow rhombic plates. Ladenburg proposes for it the name cocethyline.—*American Journal of Science*, Feb. 1886.

Tobacco Amblyopia.—In a tabulated report on twenty cases of tobacco amblyopia, Dr. G. Hartridge presents the following methods of diagnosis and treatment: The chief points relied on in the diagnosis were: (*a*) Rapid failure of sight, with no ophthalmoscopic or other change to account for the great loss of vision; (*b*) central color scotoma; (*c*) excessive smoking. Of the twenty cases, all improved considerably, and in thirteen complete recovery may be said to have resulted. In one instance the patient was a woman (the only one that has ever come under his notice suffering from tobacco amblyopia), another was a teetotaler, and four chewed as well as smoked; but in no instance has he met with a case of amblyopia in a person who used tobacco for chewing only.

As regards treatment, the essential point was the total discontinuance of smoking, instead of diminishing the quantity and quality of the tobacco, as suggested by some writers. In half the cases strychnine was administered, in the other half a placebo, with apparently equally good results. Galvanism was tried in three cases, but with no appreciable effect. After recovery, three or four pipes of mild tobacco daily were allowed, but a caution was given that excessive smoking would be likely to produce a return of the amblyopia. In his experience optic atrophy has never resulted.—*Brit. Med. Journal*, Jan. 30, 1886.

Hippurate of Sodium.—Dr. Bon, in applying Garrod's observations, that sodic hippurate has the property of decomposing uric acid, has recommended the following formulæ for use in affections dependent upon the uric acid diathesis:

1.—Hippurate of sodium	. . .	10 parts.
Carbonate of lithia	. . .	3 "
Glycerin	. . . .	30 "
Cinnamon water	. . . .	500 "

Dose, f℥iv, four times daily.

2.—Hippurate of sodium	. . .	12 parts.
Chlorate of potassium	. . .	3 "
Simple syrup	. . . .	40 "
Peppermint water	. . .	400 "

Dose, f℥iv, four to six times daily.—*Les Nouveaux Remèdes*, Jan. 1, 1886.

The Mental Condition in Hypnotism.—In the work by Dr. D. Hack Tuke on "Sleep-walking and Hypnotism," he brings together very much that is interesting. He touches slightly on the injurious effects of hypnotism upon the subject. It is to be regretted that this matter, which is an exceedingly practical one, has not received more attention, either at the hands of the author or others.

He sums up the chief points relative to the mental conditions present in hypnotism as follows:

1. There may be consciousness during the state of hypnotism, and it may pass rapidly or slowly into complete unconsciousness, as in the somnambulistic state; the manifestations not being dependent upon the presence or absence of consciousness, which is merely an epiphenomenon.

2. Voluntary control over thought and action is suspended.

3. The reflex action, therefore, of the cerebral cortex to suggestions from without, so long as any chance of communication is open, comes into play.

4. While consciousness is retained, the perception of reflex or automatic cerebral action conveys the impression that there are two egos.

5. Some of the mental functions, as memory and imagination, may be exalted, and there may be vivid hallucinations and delusions which may persist after waking.

6. Unconscious reflex mimicry may be the only mental phenomenon present, the subject copying minutely every thing said or done by the person with whom he is *en rapport*.

7. Impressions from without may be blocked at different points in the encephalon according to the areas affected and the completeness with which they are hypnotized; these are impressive or suggestive whether by gesture or word or muscular stimulus, may take the round of the basal ganglion only, or may pass to the cortex, and having reached the cortex, may excite reaction and reflex muscular action with or without consciousness, and wholly independent of the will.

8. There may be, in different states of hypnotism, the opposite conditions of exaltation and depression of sensation and the special senses.—*Journal of Nervous and Mental Disease*, Jan. 1886.

Iliac Abscess opening in the Intestinal Cavity.—Dr. Garriga Y Puyg, of Madrid, relates the case of a child, about two years old, in whose right buttock was a painful tumor, resulting from a fall, about one month previously. A purulent diarrhœa confirmed the diagnosis of a pelvic abscess opening in the intestinal cavity. The perforation was evidently quite small, for the tumor constantly increased in size. In a few days manifest fluctuation appeared immediately behind and below the great trochanter, the incision of which caused the exit of a large quantity of fetid pus, mixed with gas of a stercoraceous odor. The cavity was washed out with a solution containing one per cent. of carbolic acid and five per cent. of alcohol, thrice daily. The fistula closed after one month of this treatment, and the recovery was complete.—*Gazette Hebdomadaire*, December 19, 1885.

Influence of Pregnancy on the Progress of Mental Diseases.—The lately recorded personal observations of Perreti accord with the generally accepted conclusions that the appearance of pregnancy in the course of a mental disease usually exercises an unfavorable influence.

If the prognosis is not thereby rendered fatal, it is at least rendered more grave and doubtful; and the more so, the later the appearance of the pregnancy in the course of the malady. Patients in the state of dementia are not notably influenced by the physiological accident in question, though usually a period of superexcitation appears, after parturition, which last is usually normal.—*L'Encéphale*, Dec. 1885.

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OPERATION TO RESTORE NERVE FUNCTION.

IN THE MEDICAL NEWS of December 19, 1885. attention was called to a remarkable case of successful nerve-section, by Surmay, after excision of a piece three-quarters of an inch long. In this case, while the result was astonishing and better than had ever been obtained before, it was possible to bring the divided portions of the nerve into immediate contact; and it is the rapidity with which the function was restored which excites comment, and not the mere fact that it was restored. But there is another class of cases of nerve injury, in which so much tissue has been lost or injured that the gap can only be filled up by some method less simple than suturing. How to deal with these cases has long been a puzzling question to surgeons. In a recent paper, "Ueber die operative Behandlung von Substanzverlusten an peripheren Nerven," contributed to the *Archiv für klinische Chirurgie*, Bd. xxxii. Heft 4, TILLMANNS, of Leipzig, presents a very interesting review of what has been done, experimentally and practically, in this way, and gives an account of a case of his own in which the best results followed the employment of a method which he recommends.

The operations which have thus far been suggested may be summed up as follows:

1. Transplantation of a piece of nerve from an animal of the same or of another species. This has been done successfully in animals by Philipeaux and Vulpian, and others, and most recently by Gluck. But the result is uncertain, and the conditions favorable to success are not yet clearly defined, although this plan certainly invites further study and experiment. It has once been employed in man by P. Vogt, and once by Albert, with apparently negative results.

2. Nerve-grafting, as proposed by Létiévant in 1863. This method consists in uniting the peripheral end of a divided nerve to the continuity of a sound one in a way indicated by its name. It has been employed once in the human subject by Despres, the result being good, but, as Tillmanns points out, open to the suspicion that it may have depended more upon vicarious action of unimpaired parts than upon restoration of lost function in the nerves and muscles previously affected.

3. A modification of this method consists in joining a nerve divided at a lower point to the continuity of one severed higher up, and then uniting the distal end of the latter to the proximal end of the former, while the proximal end of the second nerve is joined to the continuity of the one divided at a lower point. This complicated method appears never to have been practised either upon man or upon animals.

4. Vanlair, in 1882, reported that he had secured regeneration of a nerve in dogs by securing the divided extremities in the ends of a decalcified bone drainage tube. Here the tube seems to have served simply as a protection to the developing nerve fibres as they proceeded from the proximal end.

5. Löbker, in one case, resected a piece of both bones of the forearm, and sutured the soft parts, including the median and ulnar nerves, with an excellent result.

6. Létiévant, in 1872, attempted to unite the divided median and ulnar nerves of a man by cutting down on them, dissecting up from each end of both a pedunculated flap, and joining the flaps by sutures, so as to fill up the gaps in the nerves. This operation did not improve the condition of the patient. Nevertheless, Tillmanns is convinced that it is worthy of imitation, and has employed it in a single case, which he reports in the paper before us. His patient was a woman, twenty-three years old, who had been wounded with a scythe about two inches above the wrist, on the volar side of the forearm, with complete division of the median and ulnar nerves, followed by paralysis and atrophy of the muscles to which these nerves are distributed. Four months after the date of the injury, Tillmanns cut down through the scar, and found the ends of the nerves separated by a gap about an inch and three-quarters wide. He freshened the ends, dissected up a flap from each of them, and joined these flaps with two fine catgut sutures. A similar method was used to join the ends of the divided tendons. The wound healed by first intention. Passive exercise and electricity were energetically employed, and the functions of the nerves and muscles were almost fully reëstablished in the course of fourteen weeks. The patient's condition a year after the operation was so

good, that she wrote Dr. Tillmanns a letter with the previously paralyzed hand, which she said was as good as the other, except that sensibility was not perfect at the ends of the second and third fingers.

It is not surprising that such a result should lead Tillmanns to recommend this method of operating to others. To this motive may also be added the inducement offered by a knowledge of the mechanism of nerve regeneration. This is not so exact as might be wished; but it seems probable that nerves are regenerated by the outgrowth of tissue which proceeds from the proximal end of a divided trunk, and that any interposed material can only serve as a sort of scaffolding or guide for the advance of this tissue. It would appear rational, therefore, to use for this purpose an absolutely homologous material, as well as one which is vitally connected with the part to be renewed. It would certainly appear advisable to try this flap method in cases in which the ends of a divided nerve cannot be brought together, before resorting to so radical a procedure as cutting out a piece of bone to permit of their approximation, as was done by Löbker. But, in any case, the facts briefly indicated above, together with the well-known power of regeneration in nerves, are calculated to encourage surgical interference in cases in which nerves have been accidentally divided, or in which segments have been removed by operation. At the same time it is important, in judging the result of an operation, to bear in mind what may happen, in the way of restoration of function, without any operation whatever. If due allowance be made for the part which may be played by the natural regenerative power of nerves, and for the deceptive effects of the vicarious action of muscles and nerves, it may be hoped that a judicious application of the present resources of surgery will lead not only to a better understanding of the intricate problems of the morphology and physiology of the nerves, but also to the great advantage of those who have sustained injuries of the class described.

HEREDITARY CHOREA.

THE hereditary transmission of disease, or of the tendency thereto, is nowhere better illustrated than in many nervous and muscular affections. We can recognize an entire group of so-called "family diseases," of which progressive muscular atrophy, pseudo-hypertrophic paralysis, and hereditary ataxia are the most striking examples.

A hereditary tendency to chorea is well recognized in children, but the remarkable record given by DR. PERETTI, in the *Berliner klin. Wochenschrift*, No. 52, 1885, is probably unexampled in the history of the disease. Mrs. N. suffered from a mental affection and choreic movements, and there was a history of similar troubles in her parents and grandparents. Two of her four children, Mrs. A. and Anton N., when adults, suffered for years with chorea, and the latter became insane. Of the five children of Mrs. A., three became choreic, one son has tremors, and one is insane; while of the ten children of Anton N., six developed chorea; so that, in all, twelve members of the family have been afflicted. The disease appeared in each case in middle life, after forty years of age, and has persisted. In several members of the family insanity followed, or came on at the same time with the development of the movements. The author regards the affection as true chorea of the chronic form described by Sée, which affects adults or elderly people, and persists for years without any relief from treatment. Peculiarities which separate this form from the common infantile disease are the diminution of the motion during intentional movements, and the chronic, incurable course; and it is not improbable that when the morbid anatomy of the disease is known, it will be found to be more closely allied to those disorders of coördination depending upon sclerotic changes in the brain than to true chorea.

This is doubtless the same affection as has been well described as hereditary chorea by DR. CLARENCE KING in the *New York Medical Journal*, vol. i., 1885. In the family which he observed, the great grandmother of his patient had ten children, four of which were sufferers. Of three of these the history is incomplete, but they had children who developed chorea. Of the fourth child the history is well known. He had nine sons and daughters, only one of which was affected, and he has five children, of which three were choreic and two healthy. The disease never manifested itself before the twenty-fifth or thirtieth year—although it often appeared later—in one instance, not until the fiftieth year. In the *Medical and Surgical Reporter*, 1872, DR. GEORGE HUNTINGDON, of Pomeroy, Ohio, gave an excellent account of hereditary chorea as it existed in certain families of the east end of Long Island. The late appearance and the tendency to mental disorders, together with the hereditary nature, are exceedingly well portrayed.

IS HE DEAD?

MOST of us remember the mythical dog of the distich, who, while he lived,

> "Lived in clover,
> And when he died, he died all over."

The dog was mythical, not on account of his habitat, but because no vertebrate is subject to the synchronous death of all its parts, except as a result of instant annihilation. Were we, however, to decapitate the living subject of the rhyme, there would be before us, after the last convulsive struggle, that

which to the layman is a dead dog and nothing more. We, of course, know that in that limp body there still lurk all the potential energies of life, and that were the vessels of the severed head filled with a stream of bright arterial blood, the drooping lids would rise to disclose eyes roving, perhaps, from point to point in search of the assailant. The stream is stopped, and once again the dog is dead. We open the abdomen and do not cause thereby the slightest twitch of pain. The heart has ceased to beat, and not the faintest gasp is heard or seen, and yet before our eyes there slowly writhes the warm and most uncanny gut. The opened belly cools, the movement dies away, but blood removed from the now well-filled veins still shows, when microscopically examined upon the warm stage, the amœboid movements of its living leucocytes.

And even now there still remains intact one vital attribute. The muscles, lax and inert because deprived of those great central motor forces which were, perhaps, the first of all to fail, will yet respond to an electric stimulus. It was through a knowledge of this fact that Rosenthal was enabled to diagnosticate an apparent death of forty-four hours' duration and thus prevent a premature burial. Richardson, of London, observes that unless the body be previously warmed, the test may fail.

Such methods were not at the disposal of our forefathers, and for them the cessation of respiration and circulation heralded inevitably the coming of the end. The former condition was determined by the mirror or feather at the mouth or nostrils, or by balancing a vessel of water on the seemingly motionless chest. That such signs are of value only when positive, is sufficiently shown by the fact that respiratory movements are not thus discernible in hibernating animals. Apart from the finger on the pulse, the heart's arrest and its attendant train of effects were shown by the unreddened tip of the tightly ligatured finger, by the non-oxidation of the bright needle inserted in the flesh, by the disappearance of the normal translucency of the hand, by the uncoagulable bubbly serum in the heat vesicle produced post-mortem, and by the absence of congestion on the subcutaneous injection of ammonia. There is, also, a series of neuro-muscular phenomena of much importance: the simultaneous relaxation of the sphincters, the dropping of the jaw, the flexion of the thumb against the palm, and the absence of pupillary response to light or atropia. Then came Bouchut's ophthalmoscopic observation of the development of gas in the retinal vein immediately after death—an observation of great importance if fully confirmed.

Until some thirty years ago, however, the symptom of muscular rigidity when coincident with other mortuary signs, meant but one thing. The *rigor mortis* was the stiffness of death, and indicated not only that the individual was beyond recovery, but that the muscles themselves were dead, and their myosin coagulated by a demonstrable post-mortem development of acid. Then were published, almost simultaneously, the observations of Brown-Séquard and Stannius. The former, using as material two executed criminals, showed that in, respectively, thirteen and fifteen hours after death, the rigid limbs of these subjects, on the injection of arterial blood in their vessels, became lax and responsive to electric stimulation. The analogous experiments of Stannius demonstrated the apparent paradox of temporary artificial rigor mortis, induced in a limb by the exclusion therefrom of arterial blood for a space of from two to four hours, and dissipated by the reëntrance of the normal blood stream. Kühne, who repeated these experiments, and whose results have for some time been regarded as final and conclusive, maintained that here the rigor was incomplete, and that a more prolonged stoppage of the arterial current would have produced a rigidity which could in nowise be dissipated, and which was dependent upon the death and coagulation of all the muscle fibres of the limb.

But now there reach us the reports, fragmentary, unconfirmed, and lacking in detail, of a recent discovery made by Brown-Séquard, which appears to prove that *muscles in a state of cadaveric rigor remain endowed with the vital attribute of contractility up to the appearance of putrefaction.* By means of a delicate recording apparatus, the observer just mentioned has shown that from the time of appearance of rigor to the entrance of muscular putrefaction (a period of days and even weeks), there is an alternate contraction and relaxation, many times repeated, of the fibres involved. It is suggested by Brown-Séquard that the chemical changes which pave the way for putrefaction are the efficient stimuli of the contractions, which in some instances were measured, and were found to consist in a shortening of the muscle to less than two-thirds of its length in the relaxed state.

With the suggestion that daily microphonic observations of the muscles after death would probably throw decided light upon the subject, we must await with great interest the further data of a discovery, which, if confirmed, disproves the coagulation theory of rigor, and which most surprisingly postpones the period of actual death in one of the most important tissues of the body.

MUSCLE AND TENDON REACTIONS.

The interesting observations of Drs. S. Weir Mitchell and J. Morris Lewis, concluded in this number of The News, on certain tendon and muscle phenomena, are not only of value as positive addi-

tions to our physiological knowledge, but they seem also to contain the promise of a deeper insight than we yet possess into the laws governing muscular irritability in normal and pathological states. In a subject so well threshed out as this has been since Westphal's discovery, we could scarcely have expected to find so many novel points.

The authors agree with previous observers, that the knee-jerk, and other responses to tendon taps, are direct muscle acts, and a very considerable portion of the research consisted in a study of the various circumstances which increase or lessen these acts. The influence of volitional acts, already noted by Jendrássik, and the effects of strong galvanization of the brain in increasing the knee jerk, are truly remarkable, while a combination seems capable of inducing in healthy individuals a sensitiveness of muscle such as is only met with in disease.

The passive tension, upon which Gowers and others lay such stress, is not thought to be essential, and they support their position by several striking observations. The tone and intrinsic irritability suffice, and by virtue of these, and not the passive tension, though this may assist, the muscles respond to various excitations. The study of the direct muscle reactions is very interesting, particularly in the relation established between them and the so called reflexes. It seems odd, as the authors remark, that the electrical contractions of muscles are not reinforced by means which add to the knee-jerk and muscle reactions. We should certainly have expected a similar result.

The overflow theory which the authors adopt to explain the increase of the knee-jerk by voluntary acts, etc., seems to meet the case, but it is of secondary consideration in comparison with the value and suggestiveness of the facts worked out in this important research.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, February 2, 1886.

The Vice-President, Leonard Weber, M.D., in the Chair.

Dr. C. L. Dana reported a case of

TOTAL TRIGEMINAL PARALYSIS WITH ALTERNATE HEMIPLEGIA, AND THE RELATION OF THIS PARALYSIS TO THE SENSE OF TASTE.

The patient was a single man, aged thirty-five, under the treatment of Dr. George L. Fox, for eczema of the scalp. He had always been healthy, and gave no history of syphilis or excessive indulgence of any kind except in athletic sports. In August, 1885, he was attacked with a trigeminal paralysis on the left side, affecting all of the sensory branches of the fifth cranial nerve, and to some extent probably the motor branch. The paralysis came on without any other complicating symptoms. In December, 1885, he was attacked with a crossed hemiplegia, affecting the right arm and leg, and the right side of the face. When seen by Dr. Dana in consultation, the paralysis was found to be not very complete, that of the face especially not being very marked. There were no sensory and only very temporary speech disturbances. There was complete anæsthesia in the distribution of the left trigeminus, but no loss of taste on either side of the tongue. The patient soon recovered in a considerable measure from his crossed hemiplegia, but the sensory paralysis remained unchanged. In Jan. 1886, the patient had an attack of left hemiplegia.

Dr. Dana discussed the question of the nerve of taste, and referred to the contradictory opinions at present held regarding it. Most authorities now believe that the glossopharyngeal gives power of gustation to the posterior third of the tongue, and that the fifth nerve similarly supplies the anterior two-thirds, sending fibres to it via Meckel's ganglion, the great superior petrosal, the seventh nerve, and the chorda tympani. Gowers has recently declared that the sense of taste is supplied by the fifth alone. The speaker presented a review of all the evidence so far collected, and came to the conclusion that the glossopharyngeal is probably the sole nerve of taste. In his own case the lesion was probably a small hemorrhage in the lower part of the pons.

Dr. Samuel Sexton said that ten years ago it was considered proper to divide the chorda tympani for tinnitus aurium, and it was supposed to have been done. This nerve has a long and circuitous course through the tympanic cavity, and is surrounded by a sheath of mucous membrane liable to inflammation in the acute purulent processes of the ear, especially in children. He had seen and studied a large number of cases in which, owing to acute purulent inflammations, there was complete destruction of the tympanic contents, including the chorda tympani; there was no alteration of the sense of taste, though the tests to discover such an alteration were carefully made. An Italian writer has called attention to the chorda tympani as a nerve in intimate connection with speech; that certain word sounds could not be found when it was absent. But Dr. Sexton's experience had not verified this. Taste is a complex function which is developed slowly by cultivation. When the tympanic membrane is absent, so that a probe can touch the inner wall of the tympanum, a variety of reflexes can be evoked, such as vomiting, coughing, sneezing; secretions, especially in the region of the tonsils and pharynx, are increased, as is also the saliva.

Dr. M. A. Starr reported ten cases of total anæsthesia following neuralgia of the trigeminus in which there was no loss of taste. In his study of the lesions of the medulla and pons there was no record of loss of taste, though all of the cranial nerves, except the ninth and tenth, were involved; all of which would support the views advanced by the author of the paper.

Dr. A. D. Rockwell had seen many cases, and instanced one in which there was neuralgia of the seventh and fifth pairs of nerves, accompanied with loss of taste.

Dr. Dana, in closing the discussion, thought the cases cited by Dr. Sexton showed that the chorda tympani does not carry the nerve-fibres of taste at all; that they were proof that they must take another course from that described by most of the text-books. It hardly

seems probable that they have so complicated an arrangement as that claimed by Gowers, which he showed by means of a diagram.

VASOMOTOR NEUROSES.

DR. M. ALLEN STARR said that under this title he included a series of disturbances of circulation and nutrition, the causation of which could be traced to disorders of the nervous system. He selected this subject because it was one which had been somewhat neglected in the discussions of this Society, because no definite summary of the present state of knowledge of the physiology of the vasomotor action had lately been presented, and because he had recently seen a number of cases which might be classed together under this title, and which he wished to have discussed by the members present.

Disturbances of the circulation may occur in any part of the body, and are to be regarded, not as distinct diseases of the parts in which they occur, but as symptoms of lesions of the peripheral, or sympathetic, or central nervous systems. At the present time, however, it is impossible to make a pathological classification of these symptoms, and therefore they may be discussed together. In treating of the subject of vasomotor neuroses, the physiology and pathology of the vasomotor system can be discussed together with advantage.

Since changes in the force and frequency of the heart's action and variations in the total amount of the blood in the body affect the body as a whole, the state of the circulation in any one organ or part depends largely upon the degree of contraction or dilatation of its vessels. This is known as the local vascular tone. It is under the control of the system of nerve ganglia with their subservient fibres, which are found in the smaller arteries. The energy expended by these ganglia is manifested by a constant contraction of the circular muscular coat of the artery, a contraction which is constantly opposed by the dilating force exercised by the blood-pressure within the vessel. In a state of health an exact equipoise between these forces never occurs. Variations, however, in the vascular tone are produced either by local influence, or by influences reaching the ganglia from a distance through the vasoconstrictor or vasodilator fibres. The constant manifestation of energy in the maintenance of arterial tone does not have its only source in the local ganglia, but is derived partly from the central nervous system through the vasoconstrictor nerves. Here the experiments of Claude Bernard were detailed. From these experiments, it was concluded that a dilatation of the vessels follows: 1, a paralysis of the local ganglia in their walls; 2, separation of these from the sympathetic ganglia; 3, a destruction of the sympathetic ganglia; 4, a separation of these from the spinal cord by division of the anterior spinal nerve-roots; 5, a disintegration of the cord; 6, a separation of these centres from the medulla; 7, the destruction of the medulla oblongata.

The action, so far considered, has been wholly of a vasoconstrictor kind, and the dilatation mentioned has been due to a suspension of constrictor energy, normally passing outward. This is a passive dilatation. But further experiments have shown that another kind of dilatation may be produced, due to an impulse of an active kind sent to the local ganglia by the vasodilators. This is an inhibitory impulse, arresting the constrictor action of the ganglia in the vessel walls, in spite of the continued energy sent them from the central nervous system by the constrictors. Here the experiments on vasomotor dilatation were given, and the various theories of the mechanism of dilatation in the vessel walls, it being concluded that there was no mechanism in the wall which could produce a dilatation, and that a dilatation was due wholly to the blood-pressure within overcoming constrictor action.

The subject of vasomotor reflexes was then taken up, and it was shown that the seat of these reflexes is in the dorsal region of the spinal cord, since all vasoconstrictors and vasodilators can be traced to that region. The particular area of the spinal cord governing these reflexes, was thought to be the gray matter surrounding the central canal, and including the fascicular columns of Clarke. As bearing on this point, the author referred to the observations by Jacubovski, Schultze, and Fürstner. It is impossible to say from these cases whether vasomotor functions are located in the column of Clarke or in the gray matter around the central canal, or in both.

Vascular tone of the thoracic and abdominal organs is regulated by centres in the pons and medulla. Experiments of Bernard were related, and cases of diabetes mellitus and diabetes insipidus produced by lesions of the medulla and pons were mentioned. The influence of the vasomotors in the production of functional disorders of the stomach and intestines was alluded to.

From this review of physiological experiments and pathological facts, it becomes evident that the disturbances of vascular tone, which are included under the title vasomotor neuroses, may be produced by many different causes acting upon many different organs. The author here mentioned a number of possible causes and their location, after which he gave the histories of seven cases of vasomotor neuroses with remarks on the same. These cases seemed to illustrate some of the conditions which have still to be classed under the term vasomotor neuroses, from want of a more perfect knowledge of their nature. They appear to be little noticed in the books, and rarely discussed in societies; but they certainly merit careful study, inasmuch as they require cautious and scientific treatment.

DR. SACHS thought that some statements made by Dr. Starr elucidate some obscure points in experiments which he made several years ago on animals, to discover the relation of the spinal cord to the secretion of the kidneys. Eckhardt had stated that section of the cervical spinal cord had the same effect as section of the medulla; that is, to inhibit the secretion. These experiments were difficult, because of the necessity of keeping up artificial respiration, but they showed that urine was secreted as in health, though somewhat diminished in quantity. That it was actually secreted, was proved by introducing chemical substances into the blood, the coloring matter of which was shown in the urine secreted. The results obtained by Eckhardt were probably due to peripheral irritation caused by laying bare the ureters, which interfered with the secretion of the kidneys. He asked Dr. Starr what views he advanced with reference to the course of the vasoconstrictor nerves.

DR. STARR replied that one theory is that they pass from the lateral tracts of the cord through the fourth, fifth, and sixth cervical, into the sympathetic system, and thence to the viscera. Another is that they enter the sympathetic as far down as the level of the first dorsal. There is an intimate connection with the kidney. Experiments high up in the cord would, of course, produce diabetes.

DR. SACHS said that in his experiments high up in cord there was no diabetes.

DR. C. L. DANA considered himself indebted to Dr. Starr for so able a paper. The local vasomotor ganglia had been assumed to exist, but had never been satisfactorily demonstrated as physiological entities. Vasomotor disturbances are common as symptoms, and are so considered rather than as a distinct disease. Accompanying them there are almost always marked sensory and trophic symptoms, especially if chronic and had made an effect on the system. In this class of cases are those vasomotor troubles of the extremities, such as digiti mortui, and mild types of renal disease; flushing of the ears, Basedow's disease, and diabetes, should also be ranked among these. It gives rise to confusion to consider the vasomotor system as independent, in the same way as the sympathetic system, forgetful of the relation of both of these to the cerebro-spinal.

DR. WEBER spoke of the connection of sciatica with diabetes. While sugar is found in the urine of patients suffering from protracted sciatica, there were few cases of well-developed diabetes in which there was sciatica. He related three cases of sciatica in which there had been sugar in the urine, and the attending symptoms of diabetes. He had seen cases where sugar was present *after* sciatica; but he was doubtful if cases of true diabetes were developed by sciatica.

DR. LESZYNSKY related two interesting cases of vasomotor disturbances. He questioned whether cold is not a factor to be considered, since a case of symmetrical gangrene under his observation had relapses on cold days. Chilblains are common in winter.

DR. STARR, in closing the discussion, remarked that the vasomotor local ganglia had been very recently demonstrated by French physiologists in frogs, rabbits, and cats. He did not intend to give the impression that sciatica caused glycosuria, but referred to those cases, quite a number of which were on record, where there was a sudden appearance of sugar in the urine which afterward disappeared.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, February 1, 1886.

THE PRESIDENT, SAMUEL NICKLES, M.D., IN THE CHAIR.

DR. PHILIP ZENNER, in introducing the subject

TUMORS OF THE BRAIN,

remarked that our present knowledge of cerebral localizations lends especial interest to the subject of cerebral lesions. This knowledge is, however, of least practical value in its application to neoplasms of the brain. This is the more to be regretted because of the probability that brain tumors will be soon relegated, in part at least, to the domain of surgery. This inability to locate neoplasms is made more serious, and our operative treatment is made less hopeful, by the fact that a large tumor, or even multiple tumors, may remain, at least for a long time, latent, while a small tumor may produce symptoms; again, a small tumor of the brain may produce marked symptoms, while a large tumor in the same locality produces none; in other words, tumors in the same locality differ greatly in the symptoms they produce.

The features of a brain tumor which produce symptoms are: 1, its location; 2, its size; 3, character, density, vascularity, etc.; 4, the rapidity and manner of its growth; and 5, the extent to which it destroys or softens the brain substance. These various factors bear a certain relation to the kind of tumor. For instance, cysticerci are of soft consistence, and do not destroy the brain-substance; carcinomata and like hard tumors destroy the nervous tissues; so it may prove that certain tumors have their characteristic symptoms. But it is not now possible to make such an assertion.

Brain tumors produce symptoms in two ways: First, by causing general increase of the pressure within the cranial cavity; and, second, by the direct influence which they exert on the brain tissue in their immediate neighborhood. Tumors of the brain may destroy the nerve tissue; they may cause softening, or they may produce compression of the tissues in their locality. To produce local compression of the nervous tissues the growth must be harder than the tissue in which it lies. If it is softer, while it may produce heightened intracranial pressure, local symptoms are not produced. Thus, soft tumors of certain parts of the brain, as of the pons, have been found of a size which greatly increased its size, and yet in which no symptoms were produced which were referable to the pons. If a tumor be located in the cortical portion, the brain may gradually accommodate itself to the increasing pressure, and no symptoms will be produced; but in the base, direct pressure produces symptoms. Another reason for the production of symptoms in tumors of the base of the brain is the presence in that locality of large nerve-trunks, so that a very small area at the base corresponds to a very large one at the cortex. Furthermore, it appears that when a part of the cortex has been destroyed, another part may take on its function. The symptoms produced by these changes are either those arising from a loss of function or from irritation. It produces irritation when it is subject to constant changes in size, as when it is vascular in character, or when it causes inflammatory changes by its continued growth. Another mode is by the increase of intracranial pressure depending on the size of the tumor and the rapidity of its growth. There is increase of pressure in every part of the cranial cavity, but the increase in all parts is not precisely equal. The increase of intracranial pressure may thus produce symptoms which are ordinarily of local significance. Thus, the olfactory nerves may be compressed between the brain and the frontal bones. Loss of smell occurs independently of the locality of the tumor; and the third, sixth, or seventh nerve may be affected in the same way. The nerves may be compressed where they pass through the tense dura mater, or they may be compressed by the enlarged bloodvessels.

Such conditions are liable to be sources of error in

the localization of brain tumors. It is well, therefore, to remember this rule, that focal or localizing symptoms are the less valuable in making a local diagnosis the more marked are the symptoms of heightened intracranial pressure.

The most characteristic symptoms of heightened intracranial pressure are, headache, double optic neuritis, vomiting, changes in the pulse and in the mental condition. Headache is the most prominent, and is often of great severity, almost driving the patient wild. If the pain be quite circumscribed and be constantly in one place, it is likely to point to the seat of the tumor; this is especially true if there be tenderness over the circumscribed part. Usually, however, pain is of no value in localizing the tumor. There is one exception to this statement, however, that is of importance, and that is that a constant pain in the posterior part of the head and neck localizes the tumor, as a rule, in the posterior fossa of the skull. It is occasionally found that the headache and pain disappear when paralytic symptoms develop; probably this is because a part of the brain tissue has been destroyed and the pressure has been relieved. There are other cases in which pain is never manifest; these are chiefly tumors of very slow growth.

Convulsions may occur in tumors of any part of the brain. These convulsions can sometimes with difficulty be distinguished from epilepsy; they are often quite limited, however. Double optic neuritis is a common general symptom, and is believed the most nearly pathognomonic of brain tumors. It often is not noticeable unless specially sought for. It not infrequently affects the vision of one eye more than that of the other; but sometimes it causes total blindness. Blindness setting in early is of value in localizing the tumor. Vomiting indicates a tumor, in that it occurs independently of the condition of the stomach, whether that viscus be full or empty, and is often precipitate in character.

The chief localizing symptoms of brain tumor are, paralysis of the cranial nerves, hemiplegia, hemianæsthesia, monoplegia, partial spasms, reeling gait, aphasia, and hemiopia. Some of these symptoms may also be caused by the increased intracranial pressure regardless of the localization of the tumor. It may also be mentioned that in some parts of the brain tumors are latent. This is especially true of parts of the frontal lobes, the corpora striata, and optic thalami.

The diagnosis of the existence of brain tumors is based upon the presence of general symptoms, or upon the presence of gradually increasing focal symptoms. When an individual suffers from a constant headache that is not relieved by ordinary methods of treatment, he should be examined for a brain tumor. If, then, a double optic neuritis is discovered, it is an almost indubitable symptom of brain tumor.

Of the medical treatment of brain tumors I shall say little. Apart from opium as a narcotic, the iodide of potassium is the best drug. Given persistently in large doses, it is said to have produced cure in cases which were not of syphilitic nature. It is probable, however, that in the near future operative procedures will be employed, at least in a number of cases. An operation for brain tumor will be thought of chiefly in connection with lesions of the convexity.

Let us consider briefly what symptoms point us to a proper diagnosis. Tumors of the skull, which appear externally, need no special mention. Headache is an important localizing symptom. When it remains constantly in a circumscribed part, especially if pain be produced by percussing the head at the same part, it points to the probable seat of the tumor; certain motor symptoms are of great value. Monoplegia—that is, a paralysis of one part of the body—if of central origin, is usually due to lesion of the cortex. Clonic spasms, especially when confined to one part, as to one side of the face, and in cases of more general spasm, the symptom is generally indicative of the presence of a tumor. But the symptoms do not always point to lesions of the cortex. When a monospasm occurs in a part previously paralyzed, a doubt can scarcely be entertained that the lesion is in the cortical portion, and that this lesion is a tumor. Hemiopia and aphasia are usually due to cortical lesion. Such are the symptoms which under very favorable auspices may point us to the diagnosis of tumors in the convexity; but we must not forget that the value of symptoms are in the inverse relation to the indications of increased intracranial pressure. In the foregoing we have had in view the removal of a tumor which could be thought of only when it occurs in an accessible part of the brain.

Wernicke has suggested another operative procedure in cases in which removal is not to be thought of—that is, tapping the ventricles in order to relieve the intracranial pressure. In some cases the increase of pressure is not sufficient to warrant this procedure, but in many cases it is considerable. Tumors in the posterior fossa of the skull usually cause a large accumulation of fluid in the ventricles.

One symptom is so common and so important in such cases that it must be spoken of at length. This symptom is blindness. The distended third ventricle presses downward on the optic chiasm and produces atrophy. These are the cases in which blindness appears early. Double optic neuritis rarely produces blindness, but when this occurs in this connection it is usually the result of complications, generally an atrophy of the nerve. This atrophy of the nerve is usually the result of a tumor in the posterior fossa of the skull, generally of the cerebellum. Therefore, blindness occurring early is of much importance, not only in a diagnostic sense, but also because, if tapping prove beneficial, it indicates the urgent necessity for immediate treatment.

In concluding his remarks, the speaker reported several cases of brain tumor which had come under his observation, in connection with which he made further remarks on the tapping of the ventricles.

Dr. James T. Whittaker remarked that although he had come with the intention of listening to the specialist, and not of speaking, he would venture to give the views of a general practitioner. Brain tumors, if he might judge from his own experience, are rare. From an experience of twenty years, he thought he could say that he had not seen enough to average more than one case each year. He had seen more cases of sclerosis than of any kind of brain tumor. Being rare, they have more of a scientific than a practical interest; and as the most interesting question connected with the scientific consideration of the subject refers to the cause of these growths, he had hoped to hear a fuller consideration of their causation this evening. This is all the

more interesting to us now, since the advance of the theory of Cohnheim, that all tumors are developed from embryonic tissue, and it would be interesting to know just what relation this kind of tissue bears to brain tumors.

Brain tumors frequently are the local expressions of a general condition. They are generally syphilitic, tubercular, carcinomatous, or sarcomatous, and we, therefore, have in the age of the patient alone an important indication of the character of the growth—tuberculosis in early life, syphilis in middle life, and carcinoma in later life; sarcoma being the carcinoma of youth. The speaker thought that he had made better hits in the diagnostication of brain tumors by judging from the age of the patient and the presence of some disease in another part of the body, than from any other feature of the case. Even a syphilitic tumor may usually be diagnosticated from the existence of some trace of the disease long after its more active manifestations have disappeared. Tuberculosis seldom occurs in the brain, except as basilar meningitis, without some manifestation of the disease elsewhere. So with carcinoma; it is rare to find it in the brain without its presence in some of the more frequent localities of its invasion. Dr. Zenner has given an admirable exposition of the symptomatology; and it is surprising to know how many new points have been added to the knowledge of this subject in the course of a year. The diagnosis of brain tumors has been repeatedly studied, and offers us now little difficulty, and the character of the growth does not offer much difficulty as a rule, but the point which is of most interest, the localization of the tumor, is still invested with great difficulty. Dr. Zenner has put in the foreground certain symptoms upon which especially we base the diagnosis of brain tumor. Chief among these is the character of the pain, and stress has been laid on the persistence of pain. A patient with persistent pain in the head, associated with some paretic manifestation, whether with difficulty of vision or not, and whether he denies or affirms the existence of trouble in his eyes, we send to an oculist. A choked disk in connection with these symptoms means nearly always tumor of the brain. The speaker had never yet failed to make a correct diagnosis of the character of a brain tumor where a choked disk was found in connection with headache and paralysis or paresis. The location or character of the pain, in his experience, localized the tumor rather as an exception and not as a rule. Once, where he had thought to localize a tumor in the anterior fossa of the skull, from the constant localized supra-orbital pain and tenderness, and where he had been later compelled to admit the existence of lesion in the posterior part, in the cerebellum, on account of the reeling gait, the post-mortem showed the presence of a tumor nowhere else than in the cerebellum.

The localization of brain tumors has, of course, its practical side as well as its scientific side; but the fact that a brain tumor has been cut out, although a brilliant triumph of diagnosis, would give him less hope than a pylorectomy, because, as the speaker of the evening had said, the operation would be practicable only in those cases in which the tumor is located in the convexity. Of the tumors which have come under my observation, all have been localized deeper in the brain substance, and in the cerebellum for the most part. Since, then, only a few tumors are situated in the cortical region, but very little hope could be afforded by an operation. The probability is that a carcinomatous tumor would return; that a tubercular tumor would be multiple; a syphilitic tumor would not require extirpation; and so we would have to confine ourselves to the sarcoma or glioma, and the glioma distinguishes itself by not being circumscribed. It shades off gradually into healthy brain substance, a large portion of which would have to be removed. Successful extirpation of tumors of the brain would not, therefore, offer even as much hope as extirpation of tumors of the pylorus. The case would be quite different if we could attack the tumor with the galvanocautery wire or needle, without exposing it; without removing a large amount of brain matter before the tumor is reached. In many cases in which the speaker had witnessed the removal of these growths upon the post-mortem table, a large amount of healthy brain substance had to be removed, as stated, in order to get at the tumor. Then, too, other tumors are firmly adherent to the brain; they are not encapsulated, so as to be peeled out like an orange.

He would not like to be understood as saying that brain tumors can be diagnosticated by the general condition of the patient, by the presence or absence, for instance, of syphilis, tuberculosis, or cancer elsewhere in the body. The truth is, brain tumors develop for the most part in individuals previously apparently healthy, and, with the exception of a few cases which follow traumata, seemingly without cause. But the recognition of a brain tumor calls for a search for these various diseases in recognition of its character. The speaker thinks that the choked disk is accounted for by the expression of the cerebral fluid between the sheaths of the optic nerve out to the retina. He is certain that this condition occurs very frequently without blindness, or without any marked disturbance of vision. Hence, it is in his opinion a much more valuable symptom than visual disturbance.

Dr. C. W. Tangeman took exception to the views of the last speaker with reference to the possibility of locating brain tumors from the presence of a choked disk. He did not think the ophthalmoscope possessed as much value in the localization of intracranial diseases as is sometimes claimed. The exact method in which the double optic neuritis is produced is not fully understood. Von Gräfe has suggested the possibility of its being due to increased intracranial pressure, and several other views have been expressed by other authors since his publication, but not one of them is satisfactory. It has been shown that we may have a tumor of the brain the size of one's fist, greatly increasing the intracranial pressure, without any optic neuritis whatever. Cases are on record in which brain tumors have existed for nine years without producing any effect on the optic tract. Cases of total blindness have been reported following a tumor the size of a cherry, where the increase of intracranial pressure could have nothing to do with the optic symptoms. So far as localizing the tumor by the effects it produces is concerned, we are frequently misled, because the intracranial pressure may produce a meningitis from which a neuritis—a descending neuritis, as it is called—may follow, and mislead us entirely. The fact that we have optic neuritis, or that we have optic atrophy, does not always indicate that the symptoms

are due to brain trouble. If we have the general symptoms of brain tumor, associated with optic neuritis, we may be more certain in our diagnosis. As regards the relation of blindness to brain tumors, the speaker thought it the rule and not the exception, as stated by Dr. Zenner.

DR. JOSEPH RANSOHOFF remarked that the disposition on the part of neurologists to turn cases of brain tumors over to surgeons is anything but acceptable to the latter. The time has not yet arrived when these tumors can be operated upon successfully. The two cases of operative interference in brain tumors which were reported in England during the last eighteen months, and which, so far as the speaker knew, are the only ones on record, do not encourage others to pursue a similar course. Were it possible, which, as Dr. Zenner has shown us, it is not, always accurately to locate the cerebral neoplasm, operative measures would be feasible in only a small proportion of cases. In removing tumors elsewhere seated than on the convex cortex, insurmountable difficulties arise in the way of the operator. It is not impossible that in the near future, when greater accuracy in locating deep-seated neoplasms has been attained, electrolysis may be resorted to for the destruction of such growths as the knife cannot reach. In cystic tumors this would be particularly likely to be followed by good results.

His experience did not agree with that of Dr. Whittaker regarding the frequency of brain tumor. It was quite certain that he saw an average of one brain tumor *per annum*. The tumors which he saw were mostly located in the cerebellum, and in all of the cases the diagnosis was satisfactorily made from the vomiting, cerebral headache, reeling gait, and optic neuritis. The reeling gait and optic neuritis are, in the speaker's experience, so constantly present in cerebral neoplasms, that when these two symptoms are prominent in any case a strong suspicion of cerebellar tumor should be entertained. When a double optic neuritis supervenes, in addition to other symptoms, there can be no doubt as to the condition.

He regretted to learn from Dr. Zenner that so many complications depending on anatomical relations should exist to render more difficult the localization of a cerebral growth. He had hitherto taught that, with a fair knowledge of the course of fibres in the brain, such localization is easy. The rocks upon which a diagnosis may "go to pieces" having been pointed out by the essayist, the speaker will in the future be more careful of the manner in which he treats of the ease with which the situation of cerebral growths can be recognized.

DR. E. G. MITCHELL expressed his surprise at the statement that the diagnosis of cerebral tumors is easy. He had always thought that these growths are, above all others, difficult of recognition. The symptoms are certainly often vague and of doubtful value. He had seen a post-mortem in only one case of brain tumor, and in that the growth had not been suspected until recognized on the post-mortem table. No symptoms whatever had been produced that indicated its presence during life, although the growth was as large as a walnut and situated in the cerebellum.

DR. ZENNER, in closing the discussion, remarked that one condition, namely, a double optic neuritis, is of more importance than any one condition that can be found in the diagnosis of brain tumor. It is said to occur in some other conditions, in certain of the acute infections, and in some kinds of chronic poisoning, etc., but it is of so frequent occurrence in tumors of the brain, as to be of the greatest importance in them. He would not hesitate a moment in the diagnosis of a case of persistent headache in which he found double optic neuritis. There are many cases, or at least some cases, no doubt, in which a brain tumor has existed for a long time without any symptoms whatever, but there are many of these same cases in which a tumor might have been discovered if it had been sought for. In more than half the cases in which it is sought it is found, but it is not always present. This symptom of a brain tumor sometimes appears and disappears. It is also sometimes accompanied by no perceptible impairment of vision. Förster finds some defect in the periphery of the field of vision in all cases in which there is double optic neuritis. We should attempt to find those symptoms which are easily recognized if suspected, but the difficulty is that we are not accustomed to look for these minute impairments of function. It is a rare thing to find double optic neuritis in itself leading to blindness, and blindness is of value in locating the tumor in the posterior part of the brain. Tumors that can be removed are rare, and it is rare that tumors of this character can be diagnosticated. Reasons have already been given why tumors at the convexity do not generally produce symptoms. With regard to the tapping of the ventricles, although there is no positive rule for its being resorted to, the speaker thought that it should be considered in all cases for the sake of palliating the symptoms. The question is whether we can prevent the occurrence of total blindness, the advance of the reeling gait, and the mental impairment, which sometimes are symptoms of the greatest importance in these cases. These patients sometimes live a long time; in one of the cases referred to by the speaker in his report, a patient had lived five years, possibly much longer, after he had become totally blind and deaf, but such prolonged existence was merely prolonged misery. If the operation would be of benefit, the patient might live all this time with his eyesight and his hearing. In another of his cases the sight and hearing have remained unimpaired for six months, and it is a question of great import whether or not these faculties can be retained.

With regard to the diagnosis of cysts, the speaker concluded that the cysticerus is more easily recognized than the echinococcus.

In answer to a question by Dr. Reamy, Dr. Zenner said that, of all the symptoms of brain tumor, double optic neuritis is the least valuable in helping to localize the growth. It throws no light whatever upon the seat of the tumor.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, January 20, 1886.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

OSTEOTOMY FOR ANGULAR DEFORMITY OF THE HIP-JOINT.

DR. C. T. POORE presented a boy who had angular deformity of the hip-joint after long-continued disease; flexion ninety degrees, abduction forty-five degrees. In

June last, he performed a linear osteotomy just below the trochanter minor, and was able to correct the greater part of the flexion; but the abduction was difficult to correct, because the application of extension had a tendency to bring the pelvis down on the diseased side, and thus prevent the correction of the abduction, and, in order to compensate for this depression of the pelvis, the limb was crossed over the sound one. In October following he performed a second osteotomy, which left the boy in the condition seen. After the second section, an old sinus on the inner side of the hip broke out, but it was not connected with the bone, and was simply a breaking down of old cicatricial tissue. At the present time there is about eight degrees of abduction, and from twenty-five to thirty of flexion, but the boy is able to walk very well. The sections were made with an osteotome.

EXCISION OF THE SUPERIOR MAXILLA FOR CANCER.

DR. L. A. STIMSON presented a patient, forty-five years old, who was admitted to Bellevue Hospital, December 9th, with the history of the appearance four months previously of a small, painless swelling on the right side of the roof of the mouth adjoining the molar teeth. Shortly afterward, he noticed that the cheek adjoining the right nostril was prominent. Both enlargements have slowly increased, and two weeks before admission there was profuse epistaxis from the right nostril, repeated at intervals for several days. The tumor in the mouth was small, but slightly elevated, not fluctuating; that of the cheek was firm and uniform; it raised the nostril and extended alongside the nose, but to only a short distance outward or upward on the cheek.

The superior maxilla, exclusive of the orbital plate and the malar process, was removed through the incision under the eye and along the side of the nose, and the tumor was found to occupy entirely the cavity of the antrum, but was not adherent to the upper posterior or lateral wall. Recovery from the operation was uneventful.

A noticeable feature in the cas s that the bone was involved only on the oor of the antrum and at its lower anterior and inner portion; that the tumor had spread downward and forward by invasion of the bone where it is comparatively thick, rather than in the more common direction, forward into the cheek at a higher point, where the wall of the antrum is thin.

CHOPART'S AMPUTATION.

DR. STIMSON presented a patient with the following history:

M. Q., thirty-two years of age, a laborer, was admitted to Bellevue Hospital, June 25, 1885. He said that in August, 1883, a heavy log of mahogany fell across his foot, crushing it badly, and producing a compound fracture of the tibia. When admitted there was fibrous ankylosis at the ankle-joint, and the patient walked on the ball of his foot, where an ulcer soon formed which was very troublesome. In 1884 the ulcer was treated in Bellevue Hospital, where he remained seven weeks, and then left with the ulcer healed. On admission in 1885 there was an ulcerating surface on the ball of the left foot through which bone could be felt. The surrounding tissues were very red and greatly swollen. On September 15, 1885, the patient was etherized and an unsuccessful attempt was made to break up the adhesions in the joint. On October 19th, Chopart's amputation was performed under antiseptic precautions. The highest temperature reached after the operation was 100.6° F. The wound healed throughout without suppuration.

On November 18th the dressings were removed, and the patient was allowed to go about. The patient now has a useful stump, and the scar is well above and in front, out of the way of pressure, and he walks squarely upon the heel. Dr. Stimson stitched the anterior tendons down, notwithstanding the fact that the joint was so stiff that it was believed to be impossible for it to allow the heel to turn up.

THE PRESIDENT asked, with regard to the second case, whether Dr. Stimson made any special effort to cut the anterior tendons long.

DR. STIMSON replied that he did not take any special precautions because of the stiffness of the ankle-joint.

PATELLA SUTURED WITH CATGUT.

DR. L. A. STIMSON presented a patella which illustrated the fact that catgut is strong enough to hold fragments of fractured patella in position for a sufficient length of time to allow of their complete union. In the course of an operation for extirpation of the knee-joint, he had occasion to divide the patella, which was united with catgut. The wound was closed, and union took place without suppuration. The operation was performed August 28, and in the subsequent December he excised the knee-joint, because of the continuation of the disease, and removed the patella presented, which had been divided longitudinally, so that the character of the union might be distinctly seen. He thought it was practically impossible to recognize the line of division. He was unable to say whether he used two or only one catgut suture. There was nothing in the specimen which answered that question, and, unfortunately, that point was not noted in the history of the case.

CLINICAL SOCIETY OF MARYLAND.

Stated Meeting, January 8, 1886.

DR. FRANK WEST reported a case of

SUCCESSFUL LAPAROTOMY FOR INTESTINAL OBSTRUCTION.

DR. RANDOLPH WINSLOW also reported a case of

INTESTINAL OBSTRUCTION SUCCESSFULLY TREATED BY LAPAROTOMY,

which will appear in full in the next number of *The American Journal of the Medical Sciences.*

The two cases were discussed together.

DR. L. MCLANE TIFFANY thought the Society should congratulate itself on having two such successful operations reported on the same night by two of its members. These are, so far as he is aware, the first recoveries from this operation in this part of the country.

DR. W. T. COUNCILMAN readily appreciated the difficulties that a surgeon encounters in doing this operation. It frequently becomes necessary for him, even in making autopsies on patients who have died as a result of intestinal obstruction, to remove the contents of the abdominal cavity *en masse*, before the exact point and nature of the obstruction can be made out.

Dr. J. Edwin Michael said it was the appreciation of just such difficulties as referred to by Dr. Councilman, that caused in Winslow's case the opening of the inguinal canal. It was impossible to say that the irreducible tumor in the groin played no part in the obstruction until its condition was investigated by operation and only when it was found to contain fluid and no intestine, was the obstruction sought elsewhere. He thought the great amount of manipulation necessary in Dr. Winslow's case made it a less favorable one for recovery than Dr. West's. A comparison of the two cases was very favorable to the claims of antiseptic surgery. In the worse case of the two, strict antiseptic precautions were taken, and a rapid uneventful recovery followed; while in the other case, in which less exposure and manipulation of the intestines were required to overcome the obstruction, there was more or less trouble. He was not of the opinion that the chill that occurred on the eighth day in Dr. West's case was of septic origin.

Dr. West said that he thought Dr. Michael's criticism of his case was very correct, and that if he had the operation to do over again he would observe all antiseptic precautions.

Dr. S. T. Earle asked whether the cæcum was distended in Dr. Winslow's case.

Dr. Winslow said, in reply to Dr. Earle's question, that he felt for the cæcum, and then passed his hand over the large intestine without discovering anything abnormal, but owing to the distended condition of the small intestine, which filled all available space, that was not to be wondered at. The cæcum was, however, collapsed, as was proved subsequently after the constriction had been overcome. It is not easy by the sense of touch alone to distinguish the different portions of the intestines, a fact which is strongly emphasized by a recent English writer.

Dr. John Chambers said, in comparing the two cases reported, that he could not see that Dr. Winslow's case, performed under rigid antiseptic precautions, had any advantage over Dr. West's case, done with but little regard to the details of antiseptic surgery. He would just as readily operate without such precautions as with them.

In operating for hernia, he said, the abdominal cavity is practically opened, and up to a few years ago no one ever thought of using any special antiseptic methods in this operation. He said our most successful operators in abdominal surgery are not strict antisepticists.

Dr. W. T. Councilman asked Dr. West whether, at the time he operated, there was any existing peritonitis.

Dr. West said that when he opened the abdominal cavity the peritoneal coat of the intestines was very red. He took it to be an inflammatory condition. No lymph or serum was present.

Dr. Wm. P. Chunn knew of two cases that he thought could have been saved had laparotomy been performed. He asked why Dr. Winslow had not enlarged his abdominal incision instead of making an opening over the inguinal canal. Would it not have been easier to sew up the abdominal wound with one single set of sutures going through the whole thickness of the walls, than to make two sets, one for the peritoneum and one for the skin and muscles? He has used the single suture in five successful cases of laparotomy and has never had any pus get into the peritoneal cavity. When he sews up the wound with this single suture, it is his custom to hold a flat sponge beneath the incision to catch all escaping blood, and thus prevent its entrance into the abdominal cavity while the needle is being passed. This is impossible when Dr. Winslow's plan is adopted.

Dr. Winslow, in answer to Dr. Chunn, said that he made a small incision at first, because he hoped to be able to relieve the trouble without incurring the increased risk of a long incision. He used the form of suture employed, because it is certainly desirable to separate the peritoneal cavity from the wound, and sometimes when the skin incision fails to unite the peritoneum will hold, and thus prevent the access of germs to the peritoneal cavity. The only change he would make in the manner of closing the wound would be that instead of passing sutures entirely through the abdominal walls, as was done in this case, he would unite the peritoneum separately with continuous catgut sutures, and then pass the deep sutures through all the tissues external to the peritoneum. In this way the danger of pus passing backward into the peritoneal cavity would be remarkably diminished. He did not operate upon the supposed hernia first, and subsequently open the abdomen, because there was absolutely no evidence of strangulation; after opening the abdomen a condition of affairs was found which, in his opinion, demanded herniotomy, though it was by no means certain in the mind of the operator and of his chief assistant that they had to deal with an incarceration of the gut. When no intestine was found in the sac, he was assured that the constriction was elsewhere. Whilst an error in diagnosis to this extent was made, it did not in any way complicate the case, but, on the contrary, resulted in a cure of the sac, whatever the nature of it may have been. Dr. Chambers is in error in supposing the case of Dr. West to have been more desperate on account of the peritonitis which was present at the time of operation. In neither of the cases was there any lymph or effusion from the intestines, hence, though both were deeply congested, peritonitis had not set in in either. The statement that both cases terminated favorably, and, therefore, the rigid antiseptics of the one had no advantage over the less stringent precautions of the other, and that the good result in both was entirely independent of the use of antiseptics, is scarcely borne out by the facts. It certainly would seem that the maxim "tuto, cito ac jucunde" was as applicable here as elsewhere. It is a mistake to say that our best operators discard antiseptics. If by "our" is meant American, it is undoubtedly an error. Homans, of Boston, and Battey, of Georgia, are the most successful American operators, and they are rigid antisepticists. Keith, who is, probably, the most successful operator in the world, likewise employs antiseptics.

There has been much written of late upon the treatment of intestinal obstruction, and there is considerable diversity of opinion in regard to it. Mr. Hutchinson, one of the best practical surgeons in England, is opposed to operative treatment until all other means have failed. He advocates abdominal taxis, which consists essentially in a series of rough manipulations of the abdomen, shaking the patient, inverting him, tossing him in a blanket, etc., with large enemata, the internal use of opium and belladonna, and anæsthesia. If this does

not succeed, he waits, puts the patient on low diet, and repeats the taxis. Treves and others advocate early operation, as soon as it is clearly established that the case is one of obstruction. Illoway, of Cincinnati, advocates the use of enemata under strong pressure. The method of abdominal taxis is dangerous, and is likely to cause rupture of the bowel or loosening of an intussusception, or increase of the hernia instead of reducing it. Enemata, under strong mechanical pressure, are also dangerous. Abdominal section offers the best chances for success, if simple means fail. Sometimes the constriction is a simple band, which can be easily divided, as in a case seen by the speaker, where the band was only as thick as a few strands of horsehair, or, as reported by an English surgeon, where the vermiform appendix constricted the ileum.

Dr. Winslow, in conclusion, said that three symptoms are sufficient indication for the operation—obstinate constipation, severe intestinal pain (especially when the coils of intestine can be seen and felt through the abdominal parietes), and stercoraceous vomiting.

DR. N. G. KEIRLE had, some years since, had a patient, aged eighty-five, who had marked stercoraceous vomiting and swelling in the femoral region. He cut down upon the swelling, and found a sac with nothing in it. He suggested opening the abdomen, but as his consultant did not agree with him, the idea was abandoned. He asked whether Dr. Winslow was sure his case was not one of intussusception?

DR. WINSLOW was sure it was not.

DR. L. MCLANE TIFFANY did not think there was any peritonitis in Dr. West's case, as there was no exudation either of lymph or serum. He thought the redness of the peritoneum due to congestion. He called attention to a phenomenon that he had often observed in twenty-seven cases of strangulated hernia upon which he had operated, and of which he had notes: if vomiting prior to the operation was present, then vomiting took place during or immediately after reduction. It had occurred in both cases reported to-night. He thought it had relation to relief, and considered it a favorable prognostic sign. It may or may not be accidental; however, he considered it worthy of consideration. Where obstruction is complicated with femoral or inguinal hernia, washing out the stomach has reduced it, and vomiting after reduction may be a reversed action and not evidence of strangulation. If inverting the patient does not liberate the knuckle of intestine, he thought it better surgery to open the abdomen than to cut wildly over the veins.

He had not operated upon a single case of strangulated femoral hernia in which the patient did not complain of pain in the region of the umbilicus, and regarded this as an important point in diagnosis. A marked hyperæmia of a limited portion of the intestine often gives rise to symptoms closely simulating those of obstruction. He thinks the persistent vomiting, after reduction of a hernia, due to a localized hyperæmia and an atony of the gut at the point of constriction. Did not think Dr. West's case should be cited as one that recovered without antiseptic precautions. In his opinion, sufficient antiseptic detail was observed, and he looked upon the comparison between the two cases as not being altogether a fair one, as the conditions were far from similar. He did not think the chill on the eighth day in Dr. West's case was the result of septic poisoning, but was probably malarial.

DR. S. T. EARLE said he did not think that one should be content with finding but a single obstruction. Others should at least be sought, for a case had recently been recorded in which the patient died from a second obstruction that had existed at the time the first one was reduced.

DR. J. EDWIN MICHAEL said, in regard to the remarks made by Dr. Chambers which were opposed to the importance of antiseptics in surgery, that it is usually recognized at present by surgeons that unless you have especially adapted apartments in which to operate, it is essential to the success of the operation, and is due your patient that every precaution should be observed.

Dr. Chambers has gone far astray in saying that most of our abdominal surgeons do not use antiseptic precautions, and especially in including Keith in that category. Keith has given up the spray, but as I am credibly informed by one who has recently seen him operate, he uses the most rigid antiseptic precautions in all other respects. It is true that Tait has had wonderful success with simple cleanliness, but it must be remembered that he operates in a private hospital where every detail of cleanliness is managed with scrupulous care. He avoids the causes of septic troubles in a way not practicable in a general hospital or private house. In regard to the unfairness of a comparison of the cases referred to by the President, I have only to say that the more they are compared the more apparent is it that Dr. Winslow's presented the most unfavorable features, and in regard to the sufficiency of antiseptic precautions, I can only refer to the candid admission of Dr. West, that in his case the antiseptic preparation was very incomplete.

DR. J. W. CHAMBERS did not think statistics would show any advantage for strict antiseptic surgery.

DR. N. G. KEIRLE thinks the operation should be done early, before inflammatory softening has begun; if not, one incurs the risk of rupturing the gut during manipulation.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, January 26, 1886.

DR. JOHN H. MUSSER presented some

NOTES ON THIRTEEN CASES OF TUBERCULAR MENINGITIS.

(See page 205.)

DR. WILLIAM OSLER then read a paper on

THE STRUCTURE OF CERTAIN GLIOMATA.

He desired to call attention to the histological character of certain brain tumors which present peculiarities of structure separating them from the ordinary small-celled gliomata.

The specimens which he showed were from three cases, the features, clinical and anatomical, of which may be thus summarized:

Case I.—Girl aged sixteen, blind from third year; intelligent; head not large. Occasional convulsions and spasms of muscles of neck. Death sudden. Tumor occupied the surface of the left thalamus, and extended

into the third ventricle. There was extensive dilatation of the lateral ventricles.

Case II.—Girl aged fifteen. Jacksonian epilepsy for over fourteen years. Small firm tumor occupied the upper part of ascending convolution.

Case III.—Man aged forty. Head pain, mental disturbance, drowsiness, the chief symptoms. Tumor, the size of a lemon, occupied the left anterior lobe of brain. The physical characters of these three tumors differed considerably. In Case I. the mass on the thalamus was firm, but the portion projecting into the third ventricle was soft, grayish in color, and looked like an actively growing neoplasm. In Case II. the small tumor at the upper part of ascending frontal convolution resembled a patch of sclerosis, while in Case III. the tumor had a large central area of fibro-caseous change with a peripheral zone of actively growing grayish-red tissue.

Histologically these tumors are similar in the dense feltwork of fibres which make up the chief mass of each, the fibres varying somewhat in thickness and in closeness of arrangement. Careful observation of teased specimens shows that the fibres are, for the most part, in connection with cells, and so far the growths conform to the type of glioma. True, we do not find here the typical arrangement of small cells with delicate protoplasm and numerous fine ramifying processes which gives to many gliomata an appearance not unlike that of a small-celled sarcoma. There are gliomata, however, with larger and more irregular cells and with coarser fibres than the description in text-books would lead us to suppose, and it was more particularly to certain characters in the cells of these tumors that he wished to call attention. A study of teased, fresh specimens can alone give a clear idea of the shape, size, and relations of the cell elements.

The following varieties of cells occur in these growths:

1. The ordinary "spinnen" or spider cell, with many processes, and which may be regarded as the characteristic cell of the glioma. These present considerable variety in size; many are not larger than colorless blood-corpuscles, others double or treble the size. The smaller have more delicate processes which in sections of hardened specimens may not be apparent. Some of the larger cells look not unlike multipolar nerve cells.

2. Large, unbranched, spindle-shaped cells, with greatly elongated processes. These resemble enormous connective tissue corpuscles, and the processes may be traced until they taper to extremely fine fibrils. Others are scarcely spindle-shaped, but present flat, ribbon-like processes. Some of these cells are among the largest and most remarkable met with in tumors. In Case I. the mass in the third ventricle was composed largely of them, and isolated ones measured as much as 0.4130 of a millimetre. They present usually single large nuclei, and the protoplasm of the cell is either homogeneous or finely granular. In Case III. these forms were also very abundant, but in Case II. they were not numerous.

3. Cells which resemble closely in appearance large ganglion cells of the nerve centres. They present a dark granular protoplasm, large nuclei, and one, two, or more processes, which either run singly or finally branch. The most remarkable looking are those with a single process springing from a balloon-shaped cell. Others have a process from either end of the cell body. They are usually much larger than the spider cells.

4. In Cases I. and III. there were structures of very curious aspect, which probably may be regarded as derivatives of the large fusiform corpuscles. These were remarkably translucent, band-like fibres, tapering slightly at either end, but without nucleus or granular protoplasm. From their close resemblance in form to the spindle-shaped cells, and from the fact that these latter often present a remarkable translucency, I think we may regard these peculiar fibres as resulting from a vitreous or hyaline transformation of the large spindle cells.

These tumors conform to the variety described as neuro-glioma by Klebs, who holds that the large ganglion-like cells found as such important constituents of these growths are derived directly from the nerve cells of the gray matter, and that in the development of this variety all the elements of the nerve tissue participate. Certainly the resemblance between many of the large cells and nerve elements is very striking, but I have not been able to satisfy myself of their relation to the preëxisting tissue parts. This is, of course, extremely difficult, but in a careful study of sections taken from the advancing regions of the growths, I have not met with appearances which would lead me to suppose that the nerve cells were in process of proliferation. Klebs states that he has demonstrated by means of osmic acid and gold chloride the nature of the cells and their processes, but this has not been confirmed, and I could not determine that the cells or fibres described above behaved in a characteristic manner with these reagents. That they are probably connective tissue elements seems probable from an examination of a large number of the cells in teased preparations. Gradations and intermediate forms can be seen between cells closely resembling unipolar or bipolar nerve ganglia and the typical spider cells with innumerable processes. Gliomata of this form are not uncommon. Klebs described fourteen or fifteen, and of five cerebral tumors of the glioma type which I have met with, only two were of the small-celled variety.

DR. WHARTON SINKLER reported

A CASE OF BRAIN TUMOR.

Miss S., æt. fifty-two. Mother, maternal grandfather, great-grandfather, two maternal uncles, and two brothers died of phthisis. Paternal ancestors long-lived. No cancer. Healthy and well up to four years old. Then had a serious illness, spoken of by some as "brain fever," another person says dysentery. Seemed to recover entirely from this and was bright, well, and agreeable. Was not very intelligent, but not by any means deficient. Catamenia first appeared at eighteen years. At seventeen years friends noticed a change in her, she was irritable, cross, and peculiar about many things. This condition of things continued through the remainder of her life, all the peculiarities becoming intensified. She was a great reader and a great eater. She was fond of literary pursuits and spent a considerable amount of time in writing and painstaking composition. She never had convulsions so far as was known. At twenty-five years she was examined as to her mental condition by Dr. Wm. Kirkbride, and he decided that, although not mentally vigorous, she was not insane.

For five or six years before her death, say at forty-five years of age, she seemed to grow stouter, less inclined to work, and in walking seemed to move slowly and with difficulty. For three or four years before her death there was a drooping of the left corner of her mouth, most noticeable in smiling or speaking. This gradually increased. For eight or ten years she has had headaches.

In the summer of 1885 she was at Atlantic City and had two or three attacks of violent headache associated with unconsciousness. These lasted several days at a time. She came under my charge in September, 1885. She then showed slight left facial paralysis, but no loss of power in arm or leg of either side. She complained sometimes of pain in the head, sometimes in the shoulder or neck. Seldom seemed to have persistent pain in one place. She had an attack of unconciousness with severe headache. Screamed with pain, but could check herself, and when asked what was the matter said she had pain, but could not state exactly where it was. At times she talked incoherently and spoke of having seen persons whom I knew she had never seen. She was unwilling to leave her bed, but if she could be persuaded to get up, could walk about. Her appetite was good, but there were indigestion and constipation. No vomiting. Vision seemed good, but the eye ground was not examined. She was eccentric in her way of talking, and said many things with the evident intention of creating surprise.

At my suggestion, she was taken to a country town in the vicinity of Philadelphia and was there under the care of Dr. J. Reeve. After reaching this place she complained of pain in the right side of the head and seemed unable to walk. Would fall into a semi-unconscious condition which would last for some hours. The temperature became elevated. The facial paralysis became more marked, but although no paralysis of the limbs existed there was general muscular weakness. The patient died on October 26, 1885.

The post-mortem examination was made by Dr. H. R. Wharton. Brain and cranial cavity: upon exposing the membranes of the brain they were found markedly congested, and the dura mater was very adherent to the petrous portion of the temporal bone on the right side. Brain removed, membranes divided and turned aside. Upon left side there was no apparent lesion. On the right side some bulging of the membranes was apparent in the region of the fissure of Sylvius, and upon dissecting them off they were found very adherent to a tumor larger than an English walnut, growing from the fissure of Sylvius about the line of the fissure of Rolando. The tumor was deep red in color, stood out from the brain tissue, and was dense to the touch. There was some effusion into the ventricles.

Dr. de Schweinitz made a microscopic examination of the growth and sent me the following report:

"The small portion sent for examination was hardened first in a solution composed of Müller's fluid one part, and methylic spirit three parts, for six weeks, and then in alcohol. Sections were cut, stained with carmine, and mounted in balsam. In the periphery the growth shows a structure composed of more or less perfectly developed fibrous tissue, more interiorly the stroma of the tumor is made up of numerous, variously sized, dilated bloodvessels, sometimes empty, but for the most part filled with corpuscles. Between these are numerous small round and large spindle cells (sarcoma tissue); scattered through the growth, sometimes singly, often in groups, there are round, yellowish-white bodies, which are probably amyloid in their nature. The tumor may be properly classed as an *angio-sarcoma*."

The growth, as may be seen, is spherical in shape and springs up out of the fissure of Silvius. The points of interest in the case to me are these. First, the probable long standing of the growth. It is likely that it began at the age of eighteen years, when mental peculiarities first showed themselves. Secondly, the absence of most of the symptoms peculiar to brain tumor. There were no convulsions, no vomiting, no defects of vision, and no pain localized in one particular spot. The facial paralysis was not noticed until three or four years before death. There were many marked hysterical symptoms which masked the true nature of the disease. These, I think, are often met with in brain tumors in women.

The following report was made by the Committee appointed to inquire into the

METHODS OF SLAUGHTERING CATTLE,

and the question as to whether cattle suffer from witnessing the slaughtering of companions.

Your Committee have the honor to report that they held a meeting at the Philadelphia Abattoir, and witnessed the slaughter of a number of cattle. As the arrangement of the building and the methods employed have been fully described to the Society in the paper of Dr. Hinsdale, it does not seem necessary for your Committee again to go over this ground; and the Committee confine their report to answering the questions proposed by the Society for the Prevention of Cruelty to Animals. We find, in the first place, that, owing to the unskilfulness in the use of the hammer by the butchers, that perhaps in the majority, certainly in a very large proportion of the cases, the animal is not rendered permanently unconscious by the first blow. In a number of instances the creature, when struck, either failed to fall, or simply went down upon his knees and rose again, and had to be driven around the pen, and sometimes struck again and again before falling. Further, it is the habit of the place to strike down several bullocks one after the other, so that one or two of the animals must lie on the ground some time before the throat is cut. In very many instances the creature seems partially to recover its senses during this time, and in some cases undoubtedly becomes perfectly conscious and even gets up upon his feet. There can be no doubt, therefore, that a large amount of unnecessary suffering is produced in the killing as practised at the Philadelphia Abattoir.

A properly directed and sufficiently powerful blow undoubtedly will immediately put an end to consciousness. It is not the general idea of the method of killing which is at fault at our abattoir so much as the unskilful way in which it is performed. If the animal were driven into a narrow pen, so as to insure quiet and a perfect opportunity for a blow; and if, at the same time, the hammer were heavier than the one now used, and were only employed by a skilful person, nothing more could be desired. In our opinion, there should be one man whose sole duty it is to strike down the

animals, since only by repetition can perfect skill be acquired.

We believe that there is a certain amount of psychical suffering induced by the present method. The animals evidently have a sense of danger, although they apparently do not recognize the point from which the danger is coming. The need for the appointment of some one who shall inspect the carcasses of the slaughtered animals was very well shown by the fact that, in one of the beasts killed during our stay, the liver was full of hardened nodules of a whitish color, and many of the lymphatic glands were evidently affected with the same disease. So far as gross appearances could determine, the animal, when killed, was in the advanced stages of tubercular disease of the liver. The nodules have been referred for examination to well-known microscopists, whose report we hope to hand in accompanying our own.

After the reading of the report of the Committee, on motion it was accepted, and the Committee were requested to present the matter, on behalf of the Neurological Society, to the College of Physicians of Philadelphia.

NEWS ITEMS.

Pasteur on the Symptoms of Rabies.—A young man who was bitten two days ago by a dog immediately took it to the Veterinary School at Alfort to have it examined; but, as the animal did not appear to be affected with rabies, it was returned to the owner—a proceeding, in my opinion, rather strange, for certainly the animal should have been kept under observation at least for some days. The young man, however, being naturally anxious about himself, wrote to M. Pasteur, asking him to appoint an hour to receive him. The illustrious *savant* immediately replied by letter, and, as it is rather instructive, I give it here in its entirety: "It is useless for you to come. Every mad dog, whether it eats or not, dies from rabies in a few days; if it eats, death takes place a little more slowly, but it never exceeds eight or ten days. In the interval it manifests rabic symptoms. Confine the dog to his kennel, where he must be fed with precaution for at least twelve days. This had better be done under the supervision of a veterinary surgeon. If the dog lives after the time indicated, you may be assured that it is not mad. Meanwhile you have nothing else to care about than the wound caused by the bite. This should not be neglected. The saliva of a dog, even that of a healthy one, contains microbes foreign to the rabic virus, as those microbes might produce abscesses, and, in certain exceptional cases, septicæmia. In case the dog should go mad, come to me without delay, 45, Rue d'Ulm, at 11 A. M., where I will apply the preservative treatment for rabies."—*The Lancet*, January 23, 1886.

The Ohio State Sanitary Association will hold its Third Annual Meeting in Columbus on February 24th and 25th. The President is Prof. Edward Orton, LL.D., of Columbus, and the Secretary, Dr. R. Harvey Reed, of Mansfield.

New York Polyclinic.—The report of the Secretary at the annual meeting of the Directors and Faculty of the New York Polyclinic, held at the College building on January 28, 1886, showed an attendance upon the clinics in that institution since the opening in November 7, 1882, of 709 physicians. Of this number, 156 had taken out the general ticket which admits the holder to the lectures in all the departments taught at the school.

The ratio of attendance upon the various departments is shown in the following list of tickets sold since November, 1882, up to January 28, 1886: Gynecology, 461; Surgery, 412; Medicine, 313; Throat, Nose, and Ear, 300; Children, 273; Eye, 250; Skin, 234; Mind and Nervous System, 207; Physiological Chemistry, 73; Obstetrics, 163; Pathology (laboratory only recently opened), 15. Total, 2702. The attendance for the present session is in excess of any previous term.

British Gynecological Society.—Mr. Lawson Tait has been elected President of the British Gynecological Society.

M. Pasteur has just received from the Count de Laubespin the sum of 40,000 francs, in order that he may extend his operations for the prophylaxis of hydrophobia.

The Journal of Nervous and Mental Diseases.—Dr. Morton has terminated his connection with the *Journal of Mental and Nervous Diseases*, which will hereafter be issued monthly, under the sole editorship of Dr. B. Sachs.

A Canadian View of the Congress Outlook.—The *Canada Medical and Surgical Journal*, in an editorial in its issue of this month, says: "In our last issue we published gladly a letter from Dr. Brodie, of Detroit, whose opinions on the subject of the International Medical Congress are doubtless shared by a considerable section of the profession in America, but, in spite of his communication, we still adhere to the position taken by us in December. We then said that, to attract the workers of other countries, the Sections of the Congress must be controlled by the men most eminent in their respective departments, and we maintained that the officers so far nominated did not, with a few exceptions, rise above respectable mediocrity. In the spirit of the 'Declaration of Independence,' we agree with Dr. Brodie that the gentlemen in question are 'the peers of any member of the profession in the United States,' but the Congress is a *scientific organization*, and the executive and Sections have, heretore, been composed of the best minds of the country in which it has met. What we maintain is that many of the Sections, as at present organized, are controlled by men who, evidently, have not the confidence of the scientific workers in the United States, and are unknown abroad. At present, the prospect is that the *peers* of the men who organized the London Congress will be absent from the Washington meeting—the men who, in the United States, occupy positions in the medical world corresponding to those held by Gull, Jenner, Wilks, Erichsen, Paget, Fraser, Flower, and others who made the gathering of 1881 so brilliant. As well may we suppose that the British profession could have made that meeting the success it was without men of this stamp as that the American profession can do without the coöperation of such men as Agnew, Bigelow, Ham-

ilton, Da Costa, Pepper, Mitchell, Loomis, Bowditch, Billings, Dalton, Martin, Leidy, Lusk, Thomas, Barker, Jacobi, Wood, Bartholow, and others who remain irreconcilable. Bombast and bluster will not cover up the disagreeable truth which is quite evident to outsiders, if not to Dr. Brodie, that, unless the present executive of the Congress patch up this unseemly quarrel, the meeting of next year is doomed to failure. The recent attempts to effect a compromise do not appear to have been successful, and we can assure Dr. Brodie that, if matters remain as they are, 'the most perfect and elaborate arrangements' will avail but little to attract foreigners in the absence from the Sections of such a number of the men who have made American medicine and surgery what it is to-day. We sincerely trust that at the next meeting of the American Medical Association steps may be taken to secure the needful harmony, without which, we repeat, it would be better to abandon the Congress."

THE NEUROLOGICAL SOCIETY OF LONDON has just been formed, with Dr. Hughlings-Jackson as President, and Dr. Wilks and Sir James Crichton Browne as Vice-Presidents. It is intended to include in the programme of the Society not only neuro-physiology and pathology, but also that aspect of neurology which bears upon psychology, both normal and morbid.

NEGRO AND CAUCASIAN DEATH-RATES.—The report of the Registrar of Vital Statistics of Selma, Alabama, in some remarks appended to a very full tabular statement of the causes of death in that city for the year 1885, presents the following interesting statistics in regard to the death-rates of the two races:

White births are in excess of deaths, 32. *Deaths among colored over births, 32.* Rate of births, 3 per 1000 in favor of the whites. Rate of deaths, 13 per 1000 less for whites.

Deaths from consumption nearly four times greater among the blacks; meningitis double; pneumonia shows the same rate as the whites. Deaths from Bright's disease double in the black race that of the white; cardiac disease double; rheumatism four times as fatal in black race; diphtheria three times as fatal in whites; malarial fever, 8 deaths among the blacks to 2 whites. There was an epidemic of cerebro-spinal meningitis during the winter and spring which greatly increased the deaths during this period. The deaths and births for the year were the same. The evident disproportion between the black birth- and death-rate is due to the fact that many births are not reported. Still, the birth-rate of the blacks is nearly equal to the whites. Were the returns perfect, the ratio of births would be in favor of the blacks. According to this statement, the excess of deaths per 1000 over the births in the black race is 7.7. The excess of births in the white race over deaths is 7.9 per 1000.

MORPHINE VERSUS HANGING.—DR. F. H. GERRISH advocates the hypodermatic administration of morphine instead of hanging as a means of inflicting capital punishment, claiming as advantages for this mode of punishment the following: (1) Its certainty; (2) Its painlessness; (3) Its freedom from the chance of horrible displays; (4) The reduction of dramatic element to a minimum; (5) Its inexpensiveness.—*Physician and Surgeon*, January, 1886.

ANTHROPOLOGICAL MUSEUM.—A project has been started in Berlin to establish there an anthropological museum, which will do with regard to the races of men what zoölogical gardens do with regard to animals. In the exhibition or garden, it is intended that representatives of various races shall permanently reside; while of such races as cannot stand the cold of the climate, representatives will be brought to Germany to reside there during the summer. An ethnological museum is to be established in connection with the exhibition, which is said to have the support of several capitalists.—*Lancet*, Jan. 30, 1886.

NOISELESS COAL FIRES IN THE SICK-ROOM.—Several lecturers on nursing have recommended that the coals for sick-room fires be enclosed in small white paper bags before they are brought in. To this suggestion a recent writer adds the useful corollary, that a thick layer of fine ashes should be allowed to remain under the fireplace. Most people dislike the appearance of a dirty hearth; but easily disturbed patients much appreciate the difference between a noisy and a noiseless fire—a reason why a gas and asbestos fire in a sick-room is preferred. For sick-room purposes the coal should not be of a bituminous, gasey, or flaring kind.—*Lancet*, Jan. 30, 1886.

A NEW METHOD OF SHOWING THE ACTION OF THE AURICULO-VENTRICULAR VALVES was shown at the last session of the Berlin Physiological Society, by DR. GAD. A canula with a flat glass cover was inserted in each of the auricles of an ox heart, the cavities being illuminated by a minute electric lamp, which permitted the observation of the valves and chords, as influenced by varying pressures of water within the ventricles.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING FEBRUARY 13, 1886.

CRAWFORD, M. H., *Past Assistant Surgeon.*—Detached from the "Shenondoah" on the 8th instant to await orders.

RUSH, C. W., *Assistant Surgeon.*—Detached from the "New Hampshire" on the 15th instant, and ordered to U. S. R. S. "Franklin."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 9 TO FEBRUARY 15, 1886.

TILTON, HENRY A., *Major and Surgeon.*—(Fort Wayne, Mich.) Granted leave of absence for two months, to commence on or about March 1, 1886.—*S. O. 8, Div. Atlantic*, February 9, 1886.

SHANNON, WM. C., *Captain and Assistant Surgeon.*—Ordered for duty at Fort Warren, Mass., relieving Assistant Surgeon John M. Banister, who will return to his proper station, Fort Adams, R. I.—*S. O. 27, Dept. East*, February 6, 1886.

EDIE, GUY L., *First Lieutenant and Assistant Surgeon.*—Ordered for field duty in New Mexico with troop "K" 8th Cavalry.—*S. O. 23, Div. Missouri*, February 8, 1886.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

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ORIGINAL ARTICLES.

LAPAROTOMY IN THE TREATMENT OF PENETRATING WOUNDS AND VISCERAL INJURIES OF THE ABDOMEN.[1]

BY FREDERIC S. DENNIS, M.D.,

PROF. PRINCIPLES AND PRACTICE OF SURGERY IN THE BELLEVUE HOSPITAL MEDICAL COLLEGE; ATTENDING SURGEON TO BELLEVUE, ST VINCENT, AND NINETY-NINTH STREET RECEPTION HOSPITALS, NEW YORK CITY.

WE have met this evening to discuss a most important surgical operation. It is an operation which, limited to penetrating wounds of the abdomen, no surgeon had ever performed until within a few months, and it is an operation in which surgeons of every part of the world feel a common interest. Laparotomy for penetrating wounds and visceral injuries of the abdomen is a surgical procedure about which great diversity of opinion exists. It is now a fitting time to discuss the important question of the propriety of this operation; and although the number of cases in which this heroic method of treatment has been adopted is very limited, nevertheless, the great principles upon which the operation is based are sufficiently established to enable us to discuss the subject in an enlightened and intelligent manner.

I shall, after much deliberate thought and study, array myself upon a side in opposition to the teachings of my honored friend and preceptor, the late Dr. James R. Wood. His memory is revered by all connected with this venerable hospital, and his masterly teaching has left its forcible impress upon every department of surgery. He advocated a plan of treatment in abdominal surgery which I feel bound, in the light of antiseptic surgery of the present time, to modify. It was not a characteristic of Dr. Wood to be behind his age in his work or in his teachings. He was not only abreast, but many years in advance of his times. Since his death the science of surgery has received an impulse advancing to a point from which, upon looking back, one can observe the great revolution which has taken place. One can perceive at a glance that this great reform is due to the development of a system of surgery which was inadequately understood a few years since, but which now has the almost undivided support of an entire profession.

The operation of abdominal section has only been rendered possible within the past few months in a class of injuries which before the introduction of antiseptics were mortal wounds. Experimental work upon the lower animals in laboratories, and the cultivation of bacteria in these institutions, have opened to us new fields of inquiry and of research, and by this knowledge we are enabled to save human lives where before they were lost. Experimental work which has been carried on within the last few months in other laboratories as well as in the Carnegie Laboratory, and also the researches into the life history of microörganisms, together with a study of the value and safety of the different germicides, have rendered it possible for us to perform operations which hitherto were considered impossible and without the pale of legitimate surgery.

In the memorable debate which was held in the New York Academy of Medicine, between the late Dr. J. Marion Sims and Dr. James R. Wood, the former advocated the opening of the peritoneal cavity in penetrating wounds. *Apropos* of the Garfield case, the latter surgeon offered some very cogent arguments against this procedure, and laid great stress upon the fact that opening the peritoneal cavity in a case of ovariotomy in a patient prepared for the operation was altogether a different procedure from opening the peritoneal cavity in a case of gunshot or penetrating stab wound of the abdomen, with the accompanying shock. In ovariotomy the shock comes after the operation; in gunshot or stab wound of the abdomen the shock is present before, as well as after, the operation. Antiseptic surgery has demonstrated, within a short time, the safety of opening the peritoneal cavity, and this fact alone has changed the views of surgeons upon the question of the propriety of abdominal section in penetrating wounds. It has been clearly proved over and over again by the crucial test of clinical experience that laparotomy is not attended with any additional risk, as was formerly supposed. The peritoneal cavity is invaded daily by surgeons, and no harm follows this procedure in ovariotomy. If this is true in a certain class of surgical diseases, it should also hold good, with certain limitations, in surgical injuries. I shall endeavor to prove, by referring to a number of cases in my hospital practice, that laparotomy, in penetrating wounds of the abdomen, is not attended with any great dangers under proper conditions, and that the presence of shock should never deter a surgeon from boldly opening the peritoneal cavity in a penetrating wound.

In the paper this evening I shall consider the subject of laparotomy in

I. Penetrating stab wounds;

II. Penetrating gunshot wounds;

III. Rupture of the intestine;

and at some future time I shall take up the remaining indications for abdominal section as they present themselves to the general surgeon. And now, these two patients, who are present this evening, have both received during this winter penetrating stab wounds of the abdomen. They have both recovered and they will now be discharged, cured, from St. Vincent's Hospital. I shall avail myself of these cases to venture some remarks upon the treatment

[1] Read before the New York County Medical Association, February 15, 1886.

of penetrating abdominal wounds, and shall also discuss the treatment which was adopted in many other penetrating abdominal wounds which have occurred in my hospital services during the present winter. I shall also take the liberty of referring to some cases of this character which have occurred to me during the past few years, together with some cases reported by other surgeons.

Case I.—T. H., æt. twenty-two, was admitted into St. Vincent's Hospital, November 29, 1885. Patient was stabbed with a knife in the abdomen. A large fold of intestine protruded through the wound. The fold was circular in outline and measured about twelve inches in length. The intestine was slightly caught, constricted, and deeply congested. Upon the surface of the gut there were two wounds, one of which was longitudinal and about two inches in length, and opened into the lumen of the intestine, through which fecal extravasation had taken place. The other wound involved the peritoneal and muscular coats. I introduced into the first wound, with the assistance of Prof. Bryant, a Czerny-Lembert suture of catgut. The suture passed through the peritoneal coat on one lip of the wound, and was then brought out at a point opposite, and then the peritoneal coat was involuted so as to bring these surfaces in contact, and this continuous suture closed the opening into the intestine. The second wound was then sutured. Several inches of intestine were drawn out, after enlarging the abdominal wound, in addition to the part which had already protruded, in order to ascertain if any other injury existed. As no other damage to the gut was detected, the intestine was carefully and finally irrigated with a warm solution of bichloride of mercury, and the cavity was sponged.

The remarks that I would venture to offer in regard to this case are: First. That the operation of an exploratory laparotomy was not called for in this penetrating abdominal wound, because the intestine already protruded; that the wounds in the gut were found extraperitoneal, and hence no extravasation of contents into the cavity took place; that enough of the canal could be withdrawn, by slightly enlarging the original wound, to render the diagnosis certain that no other wounds existed. Second. In my experience, those cases of stab wounds of the abdomen are more favorable in which a considerable quantity of the gut immediately protrudes from the peritoneal cavity. In these cases the diagnosis is rendered certain, the extravasation is outside of the abdomen, and the line of the treatment is clear. Third. That the concealed wound is fraught with the greatest danger to the patient and with the greatest anxiety to the surgeon.

Exploratory laparotomy, where the gut does not protrude, removes the danger to the patient and the anxieties of the surgeon. The exploratory laparotomy may either be in the median line or at the place where the wound existed. I prefer the median incision; but, in cases of doubt as to visceral injury, some surgeons recommend the enlargement of the original wound (which operation has been termed débridement), and the inspection of the cavity through this opening. If evidences of visceral injury are present, a regular laparotomy can then be performed in the median line.

I will now introduce the next patient, who also received a penetrating stab wound of the abdomen at the time of the convalescence of the first patient.

Case II.—J. J., æt. fifty-seven, admitted to St. Vincent's Hospital Dec. 20, 1885. Patient was stabbed in the abdomen. Upon admission, was in moderate shock. A stab wound was present in the umbilical region four inches above and three inches to the left of the umbilicus. A finger-shaped piece of omentum protruded through this opening. Patient complained of being very cold, and suffered pain over seat of wound. No vomiting; pulse feeble and rapid. Three hours after wound was received, patient was transferred to operating-room, and every preparation was made for laparotomy, in accordance with the description, to be given later, of the technique of the operation. The median incision was made. The peritoneum was divided between my index and middle fingers, which were used as guides, and a probe-pointed bistoury was employed in the cavity. The incision was extensive, and through this wound the contents of the abdominal cavity were examined. Hot flat antiseptic sponges, saturated in a mild bichloride solution, were used to protect the intestine during the examination. The coil of small intestine rolled entirely out of the cavity upon both sides of the wound, and the colon and stomach were turned upward and examined upon their anterior and posterior surfaces. During the exposure of the viscera they were constantly irrigated with a warm and weak solution of bichloride of mercury. The alimentary canal, beginning above at the stomach and ending below at the sigmoid flexure of the colon, was thus carefully examined, together with the mesentery and omentum. The examination occupied about half an hour, and was thorough and complete. No wound of any viscus was found, and the contents of the abdominal cavity were replaced and the peritoneum, linea alba, and the skin were separately sutured. Toward the close of the examination of the contents of the peritoneal cavity, it became necessary to stop the administration of the ether and to use hypodermics, to which the patient quickly responded. In six hours after the operation he had reacted nicely, and his condition at the close of the day was in every way satisfactory.

This patient's temperature never was higher than 99½° F. at any time following the day after the operation, and he made a most satisfactory and complete recovery. To both Dr. Kelly, the House Surgeon, and to Dr. Davin, the Senior Assistant, I feel especially indebted for the indefatigable care, good judgment, and untiring attention which they displayed, not only in the careful preparations which they made for these operations, but also for the professional watching which they gave these two remarkable patients. Every hospital surgeon realizes, sooner or later, to what extent he is indebted to his house staff for the uninterrupted success which attends his major operations.

I am aware that this procedure will expose me to criticism as regards the line of treatment pursued. It will be urged by those who oppose laparotomy in penetrating wounds of the abdomen, that this case would have recovered without the great risks involved in this operation, and hence that laparotomy was unnecessary. That the patient would have recovered without any surgical interference is undoubtedly true, judging now from the knowledge obtained by the exploration of the peritoneal cavity. It must be remembered, however, that this knowledge was not possessed before the operation. But if, on the other hand, a wound of the intestine existed, and "the let alone, do nothing, give opium practice"

had been resorted to, the patient would have died. We must judge such a case as this by the symptoms present at the time the patient is injured, and not from an opinion formed after the exploration has been made or an autopsy has been performed. There seems to be a tendency among medical men to judge a case in the light of the knowledge bestowed by a post-mortem examination. It is very easy for any surgeon to be wise after an autopsy; but we must judge a case upon the symptoms present at the time of the injury, which is the time for the surgeon to act in order to save human life.

The laparotomy in this case showed that the intestine was not wounded, and this knowledge was requisite in order to treat the patient upon accurate and scientific principles. The laparotomy here did not add an additional risk not common to all great operations, and it demonstrated that the operation can be performed in a thorough way without any more danger than attends every surgical operation of any magnitude. The laparotomy in this case illustrates, also, that even though the stab wound which calls for the operation is not a mortal one, that the operation can be done with impunity in such wounds.

The abdominal section in this case is the first exploratory laparotomy that I can find in surgery where the operation has been performed in stab wound of the abdomen without the previous knowledge of any wound within the peritoneal cavity and without the protrusion of the gut. It is, in other words, the application of the same principle to stab wounds upon which laparotomy in gunshot wounds of the abdominal cavity is performed. It is, however, the application of a principle to a class of wounds which are not as fatal as gunshot wounds. The future practice of surgery only will decide to what extent the profession will indorse the adoption of this principle in the treatment of the less fatal class of wounds, while the laparotomy, which is a common factor in both varieties of wounds, is the same in one case as in the other.

The complete recovery of this patient after the exploratory laparotomy in a penetrating stab wound of the abdomen, places upon record the fact that the operation can be, and has been, done with safety, and that, too, when the contents of the peritoneal cavity are temporarily removed.

I am not prepared to say that I should not recommend, in another case of this kind, that the original stab wound be enlarged so as to allow the surgeon to inspect the intestine and thus see if there are any evidences of perforation or injury to the viscera. If there are any evidences of visceral lesion, a laparotomy can be performed in the median line. This plan would be a little more conservative than the adoption of the one which I have already reported.

The resolution to perform an exploratory laparotomy in stab wounds as a means of diagnosis, was not made suddenly, but was the result of much study and reflection after an extended experience in the treatment of a large number of penetrating wounds.

The study of the following selected cases which occurred in my hospital experience, and which terminated fatally after the older methods of treatment had been adopted, led me to believe that there was still much to be learned in the management of these cases, and from the experience thus gained I was led to perform laparotomy in the case mentioned.

Case III.—P. B., an Italian, æt. twenty-three, admitted to St. Vincent's Hospital, February, 1883. Patient was stabbed by a stiletto in the abdomen. The wound was situated three and a half inches from the median line and five and a half inches from the umbilicus. The wound was two and a half inches in length. Through the wound a small mass of omentum protruded. The omentum was lacerated and was bleeding. In a radius of five inches from the centre of the wound there was well-marked emphysema. The patient was not profoundly in shock. The protruded omentum was ligated, the distal portion removed, and the base attached to the wound. Peritonitis quickly supervened, and death occurred in a few days from acute peritonitis due to a perforation of the gut. No laparotomy was performed; but the emphysema made the diagnosis positive of perforation of gut.

Case IV.—W. R., æt. twenty-nine, September, 1885, St. Vincent's Hospital. Patient was stabbed in abdomen. There were two wounds, one penetrating the abdomen and situated three inches to left of umbilicus and upon a level with it. A portion of omentum protruded which was about two inches square. Patient was in a condition of moderate shock. The omentum was ligated close to the skin, and after tying a small vessel and arresting all the hemorrhage, the stump was dropped into the peritoneal cavity. A single suture was all that was necessary to close abdominal wound. Patient had violent fixed pain in abdomen, and symptoms of peritonitis, sank slowly, and in forty-eight hours was dead.

Autopsy. A large quantity of yellowish fluid was found in the peritoneal cavity. Intestine glazed over with inflammatory exudation. A portion of the omentum was found between the layers of muscles. The jejunum was perforated in two places; the two openings were separated by a narrow bridge of intestine. The appearance of the wound indicated that the knife had passed through the intestine while the surfaces were in contact. Laparotomy was the only resource which could have saved the patient's life.

Case V.—L. D., Italian, admitted to Ninety-ninth St. Hospital on February 22, 1882, suffering from a stab wound of the back and front of the abdomen, both of which penetrated the abdominal cavity. The patient died without a laparotomy. The intestine was wounded, and had an abdominal section been performed at once I feel sure that a chance of recovery would have been afforded to the patient, while in the absence of the operation the wound was necessarily mortal.

Case VI.—J. McG., æt. twenty-one, admitted to St. Vincent's February, 1885. Patient was stabbed in right groin just above inguinal canal, and about two inches from symphysis pubis. Wound small and was closed, and patient walked home, refusing to remain. Next day the ambulance was summoned, and patient was readmitted. The original wound had reopened, and there was a well-defined swelling above the wound. Peritonitis developed, and patient was treated by the old method. In twenty-four hours patient died.

Autopsy. There was an internal strangulation eight inches above ileocæcal valve. Three inches of strangulated gut were gangrenous. The volvulus was produced by the sudden stab wound. Though the intestine was not injured, a laparotomy would have probably saved the life.

In connection with this interesting case, a most important question is suggested. Is a surgeon justified in performing laparotomy, as in one of my

cases already mentioned, and examining the intestines, in a case where there is no evidence of visceral injury? This case certainly is pertinent, and demonstrates that volvulus can be produced by a stab wound, the infliction of which causes sudden peristaltic action of the gut and develops a twist in the long axis of the small intestine. A laparotomy in this case would in all probability have saved the patient's life, and yet no visceral injury in the way of a perforation existed.

This case illustrates the fact that, besides actual wound of the gut, there is another condition which is just as fatal to the patient, though no wound of the gut is present. Nothnagel's elaborate experiments upon animals, a most interesting account of which may be found in the *Beiträge zur Physiologie und Pathologie des Darmes*, Berlin, 1884, illustrate the manner in which strangulation of the bowel may occur as a result of stimulation of the intestine by the faradic current through electrodes so applied as to produce contraction of the circular muscular fibres of the gut. There is no doubt that the stimulation produced by a stab wound may also cause irregular and sudden peristalsis, which may result in a twisting of the gut upon its own axis or upon the mesenterical axis. Internal strangulations, in the form of invaginations or intussusception or volvulus, are often associated with irregular and spasmodic action of the intestine. In almost every variety of internal strangulation, or intestinal obstruction, colic, characterized by irregular spasmodic peristalsis, is a prominent symptom.

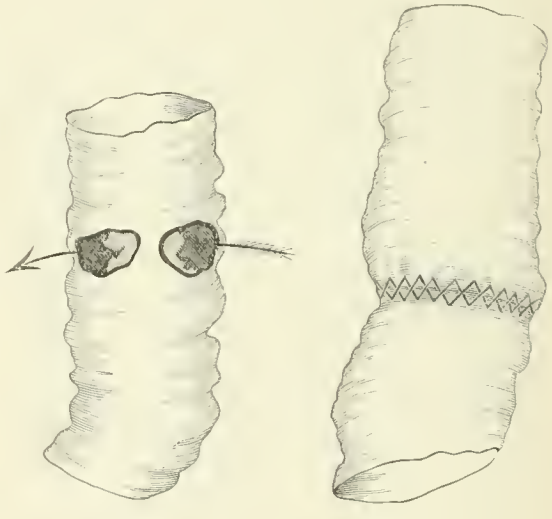
The case already mentioned clearly demonstrates that the condition of volvulus may result from a penetrating stab wound, and this condition is a most serious one, leading, sooner or later, to a fatal termination. Laparotomy will rescue a patient exposed to the dangers of internal strangulation in any of its various forms; and laparotomy for the relief of this condition in penetrating wounds is an operation which has never been suggested until the appearance of the case which I have just mentioned. I believe that this condition has caused many deaths, and that the attention of the profession should be directed to this condition, offering, as it does, a new indication for the performance of laparotomy. I can recall many other cases in my own experience which forcibly illustrate the fact that laparotomy might have saved life, and the failure to perform it in each case removed the only chance of recovery which was possible. Ten specimens, taken from the patients to whom reference has already been made, afford us a rich field for study, observation, and reflection.

Case VII.—P. B., æt. twenty-five, admitted to St. Vincent's Hospital, Oct. 1885. Patient was stabbed in the scrotum with a penknife. The knife entered the scrotum, in which there was an unreduced hernia. The incision was about an inch and a half in length. No hemorrhage from the wound. The finger was introduced into the scrotum and no intestine was felt. The subsequent history of the patient proved that the hernia had become reduced at once after the receipt of the wound. In all probability a spasmodic contraction of the intestine occurred when the gut was pierced by the knife, and this fact further illustrates the principle involved in the production of volvulus in these cases of penetrating abdominal wound. This is another case corroborative of the statement that I have made, that volvulus can be produced by this spasmodic action of the intestine as the result of stab wound.

The patient upon admission was in good condition, but the next day grew rapidly worse and soon was in collapse. An examination of the wound showed the presence of matter identical with the material which was vomited. Patient was placed under the influence of an anæsthetic by Dr. Totman, of Syracuse, and the scrotal wound enlarged and hernial sac opened. It was now evident that fecal extravasation had occurred within the abdomen, and that it had gravitated downward into the hernial sac from the pelvis. The wound was enlarged so as to explore the entire peritoneal cavity. Two large wounds of the intestine were found, and it became necessary to resect this portion in order to close the opening. The divided ends were sutured. The peritoneal cavity was cleansed with a solution of bichloride of mercury,a great amount of fecal extravasation was removed. The wound was treated as in the other cases already mentioned. The patient reacted from the operation and was in better condition after the operation than just before the laparotomy. He finally sank rapidly and died the same evening.

Examination, post-mortem, of the resected intestine showed that the wound was large and upon both sides of the gut. No leakage occurred in the line of suture when water was forced through the canal.

Fig. 1. Fig. 2.



Portion resected. Intestine sutured.

The remarks that I would offer upon this case are these: First. While the patient died some hours after the operation, in which a complete resection of a portion of irreparably damaged intestine was made, the patient survived the laparotomy, and his condition of shock was better after the resection of the intestine than previous to the operation. Second. The patient died on account of fecal extravasation into the cavity of the abdomen, and not from the direct effects of the operation itself. Third. The sutures closed completely the divided and afterward united ends of the gut, and not a drop of water leaked through the sutured portion, though the faucet was turned with full force from the Croton aqueduct.

The next specimen is from a case of penetrating stab wound of the abdomen, in which I performed laparotomy.

Case VIII.—T. C., æt. twenty-two, admitted to Bellevue Hospital January 1, 1886. Patient was suffering from a stab wound in the left side just above the centre of the crest of the ilium. Upon admission patient had a fair pulse. The wound was half an inch long, and from it there had been considerable hemorrhage. The wound was dressed aseptically by Dr. Jarvis. When I saw the patient that morning, I could find no signs or symptoms which made it evident that the intestine was perforated. The temperature was 102° F., and no shock; the pulse was 104 and of fair volume; the urine was clear; no pain except upon pressure. I passed my finger, which was thoroughly disinfected, into a large wound, which readily admitted it, obliquely forward and upward for two inches. Upon meeting with slight resistance, I withdrew the finger and gas bubbled out from the deeper parts of the wound. I thought this was evidence that the gut was perforated, and proceeded at once, with every possible preparation, to open the peritoneal cavity. The median incision was made. Upon opening the peritoneal cavity two incised and three lacerated wounds of the intestine were found. They were situated in the jejunum and ileum, and the lacerated wounds were separated by a bridge of mucous membrane. These wounds were all carefully stitched by a Czerny-Lembert suture, and the abdominal cavity was sponged out after the fecal extravasation was removed. The wound in the abdominal parietes was then closed in the manner already described. Patient rallied from the operation, and lived about forty hours, when he sank rapidly and died.

The autopsy revealed the presence of considerable quantity of bloody serous fluid in the peritoneal cavity; but no perforations had been overlooked. The wounds in the intestines were all sutured, and none of the stitches had given way in any of the wounds.

Fig. 3.

Showing gut after perforations were closed.

The remarks that I would offer in reference to this case are these: First. That laparotomy was the surgeon's only resource to save the life of the patient. Second. Notwithstanding the fact that there were five perforations, three of which were badly lacerated wounds, the sutures all held firmly, and that when the Croton water was turned on with full force not a single drop leaked through any of these various and numerous perforations. This experiment was conducted with the assistance of Dr. Jarvis, the House Surgeon, to whom I feel greatly indebted for his kind attention and skilful care of this case. Third. No perforations were overlooked in this or the following cases.

Case IX.—T. B., æt. twenty-eight, admitted to Bellevue Hospital in October, 1875. Patient was stabbed in the abdomen. The wound was situated two inches above and one inch to the right, and parallel with the linea alba. Through this opening about five feet of intestine protruded. I was unable to find any wound of the gut, and the viscera, after having been washed, were then reduced into the peritoneal cavity. The wound was sutured and the patient placed under the influence of opium. A slight amount of peritonitis developed, but the patient made a most satisfactory recovery.

Case X.—T. T., æt. fifty, admitted to Bellevue Hospital, November, 1875. Patient was stabbed in the abdomen, and many feet of intestine protruded. The viscera were washed with a warm solution of carbolic acid and thoroughly examined, and no wound being found, the intestine was returned into the peritoneal cavity. Patient was placed under the influence of opium, and after a few days recovered. This case did not belong to me, but I assisted Dr. Glass, who was then House Surgeon, to reduce the viscera. I am unable to state who was the attending surgeon at the time. This case is not included in my list.

Remarks.—These two cases, occurring about the same time, afford examples of the statement that many feet of intestine may protrude, and if uninjured may be returned, and the patient recover.

Case XI.—F. McB., æt. fifty, admitted to Bellevue Hospital, Oct. 1875. Patient was stabbed in the abdomen with a long butcher's knife. Upon admission patient was in profound shock and was bleeding profusely from the external wound, which was situated in the seventh intercostal space just below the nipple and was one inch in length. Physical examination of the chest showed no evidence of injury to the lung. Patient vomited ten ounces of blood and before admittance had also vomited blood. During the evening the patient several times vomited blood which had, it is believed, gastric juice mixed with it. Hot air bath, hypodermics of brandy and ergotine, rectal enemata of brandy and all other means were used to bring patient out of the profound collapse into which he had sunk. Patient was sustained by hypodermics of brandy every two hours, and also by enemata of milk and brandy for a period of twelve days, at the expiration of which time he was allowed to take liquid nourishment by the stomach.

These cases were admitted into Bellevue Hospital when I was house surgeon, and during Dr. Wood's time. This is a case of penetrating stab wound of the stomach, with recovery; the two preceding cases were penetrating wounds of the abdomen, with protrusion of many feet of the gut, but with no perforations in the intestine.

The following surgeons have published successful cases of penetrating stab wounds, where either a true laparotomy was performed or the original wound

was enlarged, the perforations sutured, and the cavity sponged:

Kwiencinski,	one case—recovery	1
Compton,	" " "	1
Stucky,	two cases—recoveries	2
Byrd,	one case—recovery	1
Tiling,	" " "	1
Reichenback,	" " "	1
Prieto,	" " "	1
Avery,	" " "	1
Devereaux and Hurd,	" " "	1
Glass,	" " "	1
Dennis,	four cases—recoveries	4
Total		15

There are, of course, other cases besides these fifteen, but these have been found in recent medical journals, except two cases of my own, which happened some time ago, and which I have never published; but do so now to illustrate from personal experience the statements which I have already made in this article. I have lost two cases of stab wound after laparotomy: in one, resection of the gut was made; and in the other, five intestinal wounds were sutured.

I have omitted in this summary those cases (III., IV., V., and VI.) which are reported for purposes of illustration, and which have no bearing upon the success of laparotomy, as they occurred prior to any discussion of this operation.

(*To be concluded.*)

OÖPHORECTOMY FOR THE RELIEF OF HYSTERO-EPILEPSY:

PERITONITIS WITH PERSISTENT VOMITING; CHLORAL BY ENEMA; RECOVERY.[1]

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MISS M. W. Y., of Kentucky, aged twenty-four, a well-developed, medium brunette, with the marked physiognomy of an epileptic, was admitted to my private hospital March 21, 1885. She began to menstruate at thirteen, and the function for one year and a half was normal and painless. Since that time, however, she has suffered greatly with dysmenorrhœa, and during the past two years her menses have been very irregular, six weeks sometimes intervening, while at other times only three and a half weeks elapsed between the periods. Menstrual coagula were seldom discharged, but at times the quantity of blood was somewhat excessive. She attributes the change in her menstrual phenomena to severe lifting.

On Nov. 10, 1883, she suffered an attack of fainting at the approach of menstruation and was unconscious for a short time. Similar attacks have occurred at each menstrual period since, and during the past year the attacks have recurred sometimes as often as five or six times per month. During some of these seizures, but not all, unconsciousness is complete, and she awakens from them without any knowledge of what has occurred. From members of her family, the information is obtained that tonic and clonic spasms of the muscles characterize the more marked attacks, but not the milder ones. From personal observation made by Dr. Hirons during seizures which occurred while she was in the hospital, it was noted that during the period of unconsciousness following an attack the respiration and pulse were but little changed, but the pupils were dilated and all the muscles were passive and relaxed except the orbicularis palpebrarum, which was somewhat contracted. At the time of her admission she complained of headache, more severe in the occipital region. She also suffered much pain in the lumbar and ovarian regions, especially in the vicinity of the right ovary.

A physical examination at the time of admission revealed no trouble with lungs, heart, liver, stomach, or spleen. Subsequent examination excluded the possibility of renal disease. The vagina was found to be normal, though somewhat relaxed from former examinations with speculum, which had been made in the course of local treatment administered before coming under my charge, and also to a pessary which she had worn. Her uterus was slightly above normal size, and somewhat retroverted. Its cervical canal was patulous and bathed in the discharge characteristic of uterine leucorrhœa; the uterine probe was admitted to a depth of two and a half inches. The left ovary could be detected somewhat enlarged, and slightly prolapsed; while the right ovary, not perceptibly enlarged, was excessively sensitive to pressure on conjoined manipulation. The Fallopian tubes could not be differentiated, nor could any abnormal condition of the broad ligaments be detected, except possibly a slight fulness on the right side near the uterus.

The pain in the ovarian region, noted above, I was informed by the patient, had been almost constant for a year, and was quite unbearable. Although apparently well nourished she was weak, easily fatigued, had poor appetite, and her muscles very flabby. She was nervous and somewhat hysterical.

Diagnosis.—Hystero-epilepsy, due to organic disease of the ovaries, the hysterical element being prominent.

Treatment.—Having obtained most satisfactory results in quite a number of cases, of a somewhat similar character, in which ovarian disease was unquestionably present, but epileptic symptoms not marked, from rest, milk diet, massage, etc., I decided to place the patient on such a course. This was done, and the treatment continued for eight weeks without improvement in any direction. During the treatment, as well as subsequently, after she had left the hospital, the bromides, cannabis indica, etc., were thoroughly tried, without relief of pain or any apparent control of the epileptiform seizures. The hydrate of chloral was given on several occasions for the relief of headache, and it uniformly aggravated the attack.

The patient was sent home in the latter part of May greatly discouraged. She visited my office at intervals of a few months until January 4, 1886, at which time she was readmitted to the hospital, for the purpose of having oöphorectomy performed. She had sought this operation long ago, but hoping

[1] Read before the Cincinnati Academy of Medicine, February 8, 1886.

to relieve her by measures less radical and revolutionary, I had constantly refused to perform it. Her pleadings were now irresistible, as her sufferings, both mental and physical, seemed beyond endurance. She had thoroughly informed herself not only of the possible dangers of the operation, but of its consequences upon her physical organization even in the event of a cure. Her family, as well as her family physician, joined in her request. The operation was performed January 18th, in the presence of Drs. Hirons, E. W. Mitchell, and my associate, Dr. Withrow.

An abdominal incision was made two inches in length. The ovaries, which with their tubes are here exhibited, were found to be hard and rather nodular, the left bearing a soft mass on its distal extremity, and the right had two or three small cysts on its surface. Each ovary with its tube was brought into view, the broad ligament transfixed, and the tube included in one side and the ovary in the other side of a Staffordshire knot. The ovaries and tubes were then cut away. A small tense cyst of the right broad ligament near the uterus was ruptured during the manipulation and its contents evacuated. The peritoneum was sponged carefully and the abdominal incision closed by four silver sutures.

The operation occupied about thirty minutes and the patient promptly rallied. The patient was ordered hot whiskey, but no solid food, during the first twenty-four hours. Six hours after the operation one-fifth grain of morphia was administered hypodermatically, as she complained of considerable pain. She slept during a portion of the night. During the second day the persistence of abdominal pain required repetitions of the hypodermatic injections of morphia three times. Vomiting occurred once. Temperature 100°, pulse 100. An ice-bag was ordered to the abdomen, and she was allowed some fragments of ice, as her thirst was considerable. On the morning of the third day very slight tympanites was noted. The pain in the lower portion of abdomen was increased. There was considerable retching and occasional vomiting. Temperature and pulse unchanged. On the evening of the third day tympanites was more marked. Pain was undiminished except when under morphia, and vomiting more frequent. Temperature 100.5°, pulse 110. Hot water was substituted for the ice, and seemed temporarily to allay the vomiting.

On the morning of the fourth day the retching was constant, and violent vomiting very frequent; the fluid ejected was dark green, so characteristic of peritonitis. Tympanites increased; abdominal pain severe, though morphine was increased. Pulse 110, and feeble; temperature 100.8°; patient very restless and anxious, and manifestly in a condition of peril. On the removal of dressings, the abdominal incision was found to be united by first intention, despite the vomiting; an enema of warm water and salt was given. During the outflow of the water from the bowel, considerable gas escaped, but scarcely any fecal matter, the rectum being empty. An enema containing fifty grains of chloral hydrate was now administered, following which she went to sleep in less than thirty minutes, and slept quietly for four or five hours. Her temperature had now fallen to 99.5°; the pulse remaining 110. She was then given some fluid nutriment, and again fell asleep, and spent the night in comfort; being free from pain, and not having vomited once since the administration of the chloral. The next day, the fifth after the operation, she complained of pain and some nausea, and was given forty grains of chloral by enema, and the symptoms vanished. On the sixth day she vomited once, and after a dose of chloral per rectum no more trouble occurred. The stitches were removed on the eighth day, when the wound had healed firmly throughout. On the right side of the incision, the lower stitch had produced some irritation, and a stitch-hole abscess formed. Her recovery has been uninterrupted; she sleeps perfectly, appetite good, pulse and temperature normal.

I shall say but little in the way of justification of oöphorectomy for epilepsy in such cases. The reports of Tait, Keith, Hegar, Thomas, Battey, Taber Johnson, Sutton, Goodell and others, are certainly quite encouraging. But the operation must be subjected to further trial, in properly selected cases, before its full value can be considered as defined. Neither do I propose, in this report, to discuss the general question of oöphorectomy for organic disease of the ovaries, where epilepsy is not present. It has been my good fortune to secure satisfactory results in such a large number of cases of ovarian disease, occurring in young subjects, by rest and other appropriate treatment, that I have hitherto been, and am now, quite conservative in the management of such cases, avoiding surgical interference until other methods have been thoroughly tested.

I do not believe it a trivial matter to unsex a woman. I do believe that there has been and is now, in some quarters, a tendency to an abuse of the operation of oöphorectomy. Nevertheless my own personal experience and the experience of others having larger opportunity to observe, warrant the opinion that in certain cases this operation is the only remedy which can bring relief to the sufferer. Of course, nothing can be said now as to the results of the operation in the case reported to-night; time must show whether the patient will find relief from her agonizing pain or her epilepsy.

My object in presenting this case, isolated from others, was solely for the purpose of calling your attention to the magic effect of chloral, per rectum, in arresting the vomiting and the pain. For an intelligent presentation of this action from a clinical point of view, it was necessary that I should go into detail as to the circumstances under which it was employed. Of course, it may fail me on further trial under similar circumstances, but there can be no shadow of doubt as to the relation between remedy and result in this case. There can be little less doubt that, but for this remedy, this patient would have been lost. It is not without interest in this connection, that I have, during the past year, in several instances, by the same method of using this agent, secured prompt and complete arrest of the vomiting of pregnancy. Within the past two months I saw a case in consultation, of a primipara at the beginning of the third month of gestation, who pre-

sented all of the phenomena of the pernicious vomiting of pregnancy. During the two weeks prior to my seeing her, she had vomited from ten to fifty times daily. She was now much exhausted and becoming rapidly emaciated; pulse was 120. As she vomited everything that was administered, not excepting even small quantities of cold water, I deemed the administration of remedies by the stomach out of the question; I therefore ordered the rectum to be washed out and an enema containing forty grains of chloral administered. The vomiting stopped at once. A few days subsequently it returned, but was promptly checked by a repetition of the remedy, since which time she has had no further trouble.

To my own mind, there can be but little doubt that the vomititng, in the case reported this evening, was due to acute peritonitis. The abdominal pain, the rapid pulse, increased temperature, the tympanites, and, finally, the character of the fluid ejected, would seem to settle this question. And yet, the sudden fall of temperature, the prompt and permanent relief of pain, arrest of vomiting—indeed, of all unpleasant symptoms—after the administration of the chloral, might raise a doubt in the minds of some. What explanation may be offered as to the action of chloral in arresting vomiting?

The mechanism and causes of vomiting are not well understood, but enough is known to establish the existence of a vomiting centre in the medulla closely related to the respiratory centre. The afferent impulses may come either from below upward, as in the vomiting of peritonitis, hepatic colic, or gastric irritation; or these impulses may come from a higher source than the medulla, as in the emesis caused by nauseous vapors, by the memory of past odors, taste, or sight, and by cerebral injury or disease.

In ordinary vomiting due to gastric disturbance, the afferent impulse follows the vagus, while the course of the stimulus when the cause is in the uterus or ovaries, is not so well known. From the intimate connection between the sympathetic ganglia of the abdomen and pelvic region, it is supposed that the impulse is conveyed through these to the epigastric region and thence by way of the pneumogastric to the medulla. Since, however, dogs can be made to vomit by the subcutaneous injection of tartar emetic after the vagi are cut, it is evident that there is some other route both for afferent and efferent impulses of emesis. Efferent impulses also travel through the phrenic and intercostal nerves. This additional route has been attributed to the sympathetic nerves, and to the presence of sympathetic ganglia near the cardiac orifice of the stomach, which are presumed to furnish the nervous energy necessary for vomiting when the main source of supply is removed by cutting the vagi.

Ordinarily the vomiting of peritonitis, hepatic colic, ovarian irritation, and other abdominal affections, is caused by the reflex stimulation of the normal mechanism of vomiting, and both the afferent and the efferent impulses are carried over the pneumogastric nerve.

In peritonitis the vomiting may be reflex and not due to the regurgitation of intestinal or biliary secretions into the stomach, since violent attempts at vomiting often occur when the stomach and intestines are empty. Besides, when the mesenteric nerves are cut in peritonitis or in intestinal obstruction the vomiting ceases, indicating that the emesis was reflex and that the course of the afferent impulse is through the mesenteric nerves.

Brunton has pointed out that chloral not only diminishes the reflexes in a notable degree, but that it also dilates the vessels of the intestines, exercising at the same time a marked paralyzing action on the nerves. Hence it would appear to answer two very important conditions in the vomiting of peritonitis. First, diminishing the intestinal reflexes which cause the vomiting, and second, partially paralyzing the mesenteric nerves, the route along which such reflex impulses travel. I do not mean here to advise the use of chloral in the treatment of peritonitis as a curative remedy, for its dilatation of the vessels of the intestine is really a contraindication, but its value as a symptomatic treatment in combating this most distressing factor should be appreciated and employed. Opium is apparently curative in this disease, since it will "prevent the reflex dilatation of the vessels which the local irritation would otherwise produce" (Brunton). While opium then must still be our sheet anchor in peritonitis, chloral deserves a trial in those cases in which vomiting becomes a dangerous feature.

In singultus, which probably differs from emesis only in the absence of coördination of all the muscles implicated in the latter, chloral has been recommended and found highly useful, by Brunton, Leavitt, Wood, Stillé, and Kingsbury.

In the vomiting of pregnancy, where the causes are so obscure and probably so various, we are forced to call the trouble reflex in character until its etiological factors are more clearly demonstrated. Certain it is that those remedies and methods of procedure for its treatment which have met with greatest favor are mostly directed toward a diminution of reflex irritation and spinal irritability (under methods of procedure, as above, may be included cervical dilatation, removal of inflammation, uterine displacement, etc.). These actions are possessed in a high degree by chloral, and must, in the absence of any convincing physiological data, account for its value in this affection.

The use of chloral in the vomiting of pregnancy is recommended, especially in enemata by Playfair, Leishman, Busey, Atkinson, Eulenberg, Richardson, of Boston, and Simmons, of Yokohama.

In conclusion, I would state my conviction that, while it should be given in large doses to be effective, it is not safe to employ the rules for rectal dosage usually followed in the administration of dry extracts and less soluble medicines.

If the rectum be cleansed, the dose ordinarily should not be increased more than twenty per cent. above the proper dose in the individual case *per os*.

CLINICAL HISTORY OF A CASE OF HEMORRHAGIC MALARIAL FEVER;

MICROSCOPICAL EXAMINATION OF URINE AND BLOOD; TREATED BY LARGE DOSES OF ARSENIOUS ACID; PROMPT RECOVERY.

BY BENJAMIN HOGAN RIGGS, M.D.,
OF SELMA, ALA.; EX-PRESIDENT MEDICAL ASSOCIATION OF ALABAMA, ETC.

ABOUT 1.30 o'clock, on the morning of Dec. 15, 1885, I was summoned to Eugene B., a white youth, aged over sixteen years, reported as being seriously ill with "yellow chills." It being an exceedingly inclement night, and not feeling well, I declined to go, but gave verbal directions for treatment, and wrote a prescription to be filled at the drug store. This young man had had many attacks of this dangerous malady since childhood, this being the third attack since August last, 1885. He was one of those in whom quinine always caused "hemorrhage from the kidneys" (?). Therefore, I had never been able to use the bark derivatives. In his two previous attacks this year and last year, I had "brought him through" with piperine, Dover's powder, calomel, tincture of iron, and extract of ergot.

His was thoroughly a case of malarial cachexy: he had a spleen as large as a peck measure, hard, sore, and extending down to the crest of the left ilium, and to the right of navel. He had purpuric spots on both legs; and had been under antimalarial treatment since previous attacks, but still had them. When this attack had come on he was taking as a tonic a mixture of ferri et quiniæ citrat., and syrup of ginger, unknown to him, with benefit to general health, but early morning and late night exposure, probably, induced a recurrence at this time. I gave the messenger a mixture of tinct. of chloride of iron, chlorat. potass., syr. lemon and water, about twenty-five drops of the iron at a dose, to be taken every two hours, until I came in the morning; and ordered a full dose of calomel to be taken at once, hot foot bath, and hot bottles in bed to promote diaphoresis.

On morning of 16th I called to see him; found he had had a very bad night: passed large quantities of port-wine urine; was now very sick at stomach; was drowsy; skin dry; fever gone; urine cleared up to the "meal-bran" look when cold; a little deeper color than natural when first passed, but clear; bowels had not acted well; ordered to stop iron mixture, and put on the compound iron and quinine citrate salt in 15 gr. doses to a teaspoonful of equal parts of syrup of ginger and water every two hours; Seidlitz powder to be given at 11 o'clock; hot bath to relieve symptoms of uræmia. Accidentally failed to get a specimen of the urine for examination.

Returned in two hours. Bath had made him feel better; bowels had not acted freely; still much nauseated; vomited matter of deep orange, almost red color, but when mixed with the water of the slop tub was yellow. Gave a hypodermatic of $\frac{1}{4}$ gr. of morphine, and $\frac{1}{120}$ gr. of atropine. Ordered another Seidlitz powder at 1 o'clock.

Was called in a hurry to see my patient at 2 o'clock, with information that he had another chill. I found him again freely passing port-wine urine, very much nauseated, very restless, and with high fever coming on. Ordered the hot bath again, as there was drowsiness, and I feared uræmic poisoning. The baths were taken in an old-fashioned bath-tub with plenty of warm water. I determined now to resort to the compound which was successful in the last two attacks—piperine and Dower's powder, but to add arsenic to it, as I had been informed of its successful use in such cases by Drs. Robert Cochran, Joseph Groves, and Adams, of this county. I ordered the following capsules, supplementing the Dover's powder by the hyoscyamus extract on account of the ipecac of the powder:

R.—Acid. arsenious . . . gr. ¼.
Piperinæ . . . . gr. ij.
Pulv. Doveri . . . . gr. x.
Ext. hyoscyami . . . gr. v.—M.
Five capsules.

Sig.—One capsule every three hours. To be taken during the night and next day.

At 7 P. M. his temperature in the mouth was 105°; pulse 120, full and soft. Commenced the capsules at 8 P. M., and gave another at 11, 2, 5, and 8, same night. ¼ gr. of arsenic in twelve hours.

On the evening of the 16th I found him very sick; passing port-wine urine copiously; complained of pain and soreness in spleen. He says pain in the spleen inaugurated the chill on the previous night. Took a bottle of urine for examination.

17th.—9 A. M., found him much better, but complaining of nausea. Temperature 98°, pulse 116. Renewed the previous prescription; gave capsules at 11 and 2; he thus took $\frac{1}{20}$ gr. of arsenic in eighteen hours. At 6 P. M. to-day, temperature 98°; pulse 104; temperature remained normal. On night of the 16th had passed an ordinary chamberful of the dark urine. Some symptoms of œdema arsenicalis supervened this afternoon; so lenghtened the intervals of the arsenical doses; gave the three remaining capsules of the second five at 8, 2, and 7 o'clock the night of the 17th, thus giving ½ gr. of arsenic in thirty-five hours.

18th.—Doing well; more marked symptoms of arsenical impression. Took a drop of blood from tip of finger for microscopic examination. Patient looked exsanguine.

19th.—At 2 P. M. took another drop of blood from top of left ear for examination.

Patient convalesced after this steadily; was put on pill of citrate of iron and quinine, strychnine, lactopeptine, and arsenic, so as to take $\frac{1}{10}$ gr. arsenic daily; and to take at night a potion containing potassic iodide, ext. ergot fl., and ext. polymnia medalia fl. (bear foot), for the enlarged spleen.

At this writing, January 6, is still on this treatment, and much better. Size of spleen reduced.

I am disposed to believe that full doses of arsenic constitute the best treatment for this fatal disease. It is safe to give it in $\frac{1}{8}$ gr. doses every three hours until the patient is relieved, or the full effect produced. In other words, the arsenic can be pushed safely until the eyes puff and have a purplish ring beneath them; the fingers feel stiff and puff up; the skin burns (to the patient) and itches; the stomach burns and gripes; there are thirst, dryness of the throat, and may

be a degree of constriction; tendency to looseness of bowels. These symptoms immediately disappear upon discontinuing the remedy.

Liquor potassæ arsenitis—Fowler's solution—represents, according to the last edition of the *United States Dispensatory*, nearly 1 grain of arsenious acid to each 100 minims; it takes, thus, one drachm and four-sixths to equal 1 gr. of arsenic. I have no doubt that it would be proper to give this elegant preparation in place of the arsenious acid. Twelve mimims might be given every three hours until some effect was produced, as this corresponds to $\frac{1}{8}$ gr. doses of the acid. The objection to giving arsenite of potassa or soda hypodermatically is its very irritating local effect. Four or five minims diluted with tepid water, in desperate cases, might be given every three hours for a while.

Dr. B. C. Adams, of Liberty Hill, this county, informed me a few days ago that he gave a patient, successfully, $\frac{1}{2}$ gr. arsenic in nine hours—*i. e.*, $\frac{1}{8}$ gr. at twelve, three, six, and nine o'clock, successively, beginning at twelve, noon, and the other $\frac{1}{2}$ gr. during the succeeding night and next day, at intervals of four hours, thus exhibiting 1 gr. in twenty-five hours. Dr. Jos. A. Groves, of Brown's, and Dr. Robt. H. Cochran, of Mortin's, this county, have also used this remedy, in this disease, with satisfactory results.

Appended is the report of Dr. C. J. Clark, who kindly made microscopic examinations of the specimens of the blood and urine which I collected. I was present during the examinations and verified his observations.

"*Dec. 18.*—A drop of blood from the tip of the finger showed normal blood disks, but I should say fewer than in the slides from healthy persons compared with it. The larger portion had the normal shape and size, but others were crenated, and otherwise misshapen, or reduced in size: while there were amorphous particles that might be the débris of red blood-corpuscles. A drop of water was mixed with this blood when first caught on the slide.

"*20th.*—A drop of blood from the tip of left ear, taken on afternoon of the 19th, was placed between two slides and compressed to thin it out, as it was a large drop. The bottom slide examined separately exhibited many blood corpuscles, while the top showed masses of amorphous materials taken for destroyed blood corpuscles, with some illy defined and misshapen disks.

"*17th.*—The urine was examined. A pint of fluid was brought of a dark wine color, looking as if it contained blood in abundance. Several slides were carefully prepared and examined with different powers. Not a blood disk could be found; nothing but a few epithelial cells and tube casts. I should say the color of the urine was due to the destruction of red corpuscles and the discharge of the hæmatin through the kidneys.

"Different powers were employed in these investigations, varying from 400 to 1600 diameters. Doubtless, in other cases with much engorgement of the kidneys, red corpuscles are discharged in the urine, along with a large amount of hematin from disorganized red corpuscles."

In 1869, Dr. H. S. Hudson, now of Summerfield, Dallas County, Alabama, and myself, made some microscopic examinations of blood taken post mortem from the portal vein, of a colored female dead of this disease, which were published in the *Richmond and Louisville Medical Journal* of July, 1870. We found the blood mass to be remarkably dense (as there was very little blood left in the body) and homogeneous. The blood corpuscles were deficient in number, irregular, and shrivelled. There were also a great many dark granules discoverable on the slides.

Prof. Joseph Jones, of New Orleans, examined a specimen of this urine, and reports as follows: "As a result of this examination, therefore, we have a urine of low specific gravity, loaded with casts of the tubuli uriniferi, filled with hæmatin, deficient in urea, abounding with biliary acids, coloring matter, and containing a small amount of albumen. I was astonished at the amount of bile contained in the specimen of urine, and the solid matters of the urine appeared to be chiefly those of bile."

EXTRAUTERINE PREGNANCY CHANGED TO INTRAUTERINE BY THE GALVANIC CURRENT.

BY AUGUSTUS STABLER, M.D.,
OF LAWRENCE, MASS.

SINCE reading Dr. Garrigues's article in THE MEDICAL NEWS of December 12th, on "Extrauterine Pregnancy Changed to Intrauterine by Faradization," there has occurred in my practice a similar case.

Mrs. ——, aged thirty, the mother of four healthy children, last menstruated August 12th. In September, at the expected time, the flow did not appear, but she suffered with all the other symptoms peculiar to the menstrual molimen: headache, disturbance of digestion, a feeling of weight and fulness in the pelvis, with more or less pain in the left side. I did not regard the absence of the flow as of much importance; or, indeed, the other symptoms, as she had always been subject to nervous disturbances at the period.

In November, at the expected time, the flow again was absent, and the other symptoms were intensified and prolonged. She thought her abdomen was growing larger, and feared she might be pregnant, as she was evidently getting fatter. There was, however, no morning sickness, and no apparent change in the breasts, and she had a leucorrhœal discharge, which had been absent in her previous pregnancies. On making a uterine examination I found the os patulous, and filled with the viscid discharge said to be pathognomonic of endocervicitis. This, taken in connection with the leucorrhœa, which did not come from the vagina, as no inflammation of the vagina was discovered, seemed to make it pretty clear that her symptoms came not from pregnancy, but from endocervicitis. I cautiously inserted the sound, and it passed in the normal direction, without any undue force, a distance of two and three-quarters inches. It was not followed by the expulsion of any fluid, little, if any pain, was caused, and the sound on withdrawal was entirely free from any stain of blood.

The examination satisfied me that there was no fœtus *in utero*, and the patient being quite fat I did not succeed in demonstrating any tumor in the abdomen.

In the absence of better proof of extrauterine

pregnancy, I determined to treat the endocervicitis. Applications of tincture of iodine and of nitrate of silver were made to the interior of the uterus. I also punctured the cervix with a tenotome and withdrew about an ounce of blood. Glycerine and tannic acid on cotton balls were placed in the vagina in contact with the cervix. This local treatment seemed to give temporary relief to the backache and leucorrhœa.

Having recently read of the success of Dr. Paul Mundé and other gynecologists with the galvanic current as a means of reducing chronic inflammations of the uterus, I determined to give it a thorough trial in this case, especially as her husband had a good battery in the house and was skilled in its manipulation. After providing him with an electrode that would enter only the length of the cervical canal, and instructing him in the method of its insertion through the speculum, I allowed him to make applications of a weak current from the negative pole, for fifteen minutes every night. These applications never caused her any pain, but, on the contrary, quickly relieved the flatulency to which she was subject, and were always followed by a good night's sleep. She thought the electricity was doing her much good.

About one week before the next menstruation was expected, I directed the interrupted current to be given in place of the continuous, hoping by this means to stimulate the dormant menstrual function, and bearing in mind that, in case of extrauterine pregnancy, this treatment would be the most likely to give good results.

On December 4th, the husband exposed the cervix with the speculum, and was preparing to apply the interrupted current for the first time, when by accident the patient touched the electrode with her fingers, and receiving a shock from it she refused to allow it to be applied to the uterus: the husband told me, subsequently, that he then noticed that the uterus had undergone a change. The cervix was broader and softer, and more easily reached than it had been at previous times, and there was a small light-colored object protruding slightly from the os, which he now supposes to have been a portion of the fœtus, probably the foot.

The next day, December 5th, she reported that the expected flow had come on a little ahead of time, but was attended with considerable pain. I ordered a saline purge, and insisted upon rest in the recumbent posture, and avoided all examinations or applications. The flow continued to appear and disappear, at irregular, short intervals, for about a week, until December 12th, when she had a fall in going down steps, which was followed immediately by severe pain, and about twelve hours after the fall a quantity of clotted blood was expelled through the vagina.

On the night of the 13th, the day after the fall, I was called in haste to her bedside, and found that, with very little effort, she had expelled a dead fœtus enveloped in its unruptured membranes, with placenta and appendages all perfect. The fœtus was apparently of about four months' development, which would correspond with the time elapsed since last menstruation. The woman has made a good recovery.

To sum up: What are the facts which are known in the case?

1. There was no fœtus *in utero* November 18th, as evidenced by the passage of a large Simpson's sound to the depth of two and three-quarters inches without causing pain, bleeding, or the expulsion of fluid; also evidenced by the fact that applications of tincture of iodine and nitrate of silver to the interior of the uterus caused no untoward symptoms.

2. It is probable that there was no fœtus in the uterus until December 4th, as applications of the galvanic current were regularly made to the interior of the cervix up to this time.

3. There was a fœtus *in utero* December 4th, as evidenced by the change in the position and shape of the cervix, as observed by the husband, the protrusion of a light-colored object, and the occurrence of slight hemorrhage next day, which continued at intervals, until the expulsion of the fœtus was hastened by the fall.

How are we to account for the slipping of the fœtus into the uterus after having been previously located elsewhere—probably in the Fallopian tube?

Dr. Garrigues thinks that the faradic current in his case was the efficient agent. In a case reported by Dr. McBurney, as in my case, the galvanic current was employed. Dr. Garrigues, in his able article, does not offer any rational explanation of the *modus operandi*, beyond the possibility that the fœtus may have been reduced in size by the current. I think a more rational theory is that the current induces, as is well known, contractions in the muscles through which it passes. That it is capable of inducing contractions in the uterus, is well known, and may it not also produce contractions in the hypertrophied walls of the tube? The contractions of the uterus may have a tendency to dilate the uterine orifice of the tube, as they do the os uteri, and, at the same time, the contractions set up in the tube may urge on the fœtus, and cause it to protrude into the uterine cavity.

Since writing the above I notice a letter by Dr. Paul F. Mundé, in THE MEDICAL NEWS of December 26, 1885, in which he gives substantially the same explanation, except that he holds, as a prerequisite to success, that the tubal orifice should be already dilated. This may have been so, but I do not think it was, when the galvanic current was first applied in my case. When applied in a weak current for a considerable length of time, it is well known that galvanism increases, in the neighborhood of the negative electrode, the excitability of motor nerves, as well as the nutrition and contractile power of muscle, and may thus induce increased development of the muscular fibres of the tube.

8 CHARLES STREET.

HOSPITAL NOTES.

AURAL CLINIC OF NEW YORK EYE AND EAR INFIRMARY.

Service of DR SAMUEL SEXTON.

ACUTE INFLAMMATION OF THE MIDDLE EAR TRACT.

[Reported by DRS. W. A. BARTLETT and C. J. COLLES.]

THE following seven cases of acute inflammation of the middle ear tract are of interest, representing, as they

do, a group of cases which respond readily to a very simple course of treatment, by which various instillations and vigorous syringing, so often injurious, are avoided, and shown to be quite unnecessary, a cure being brought about, and pain effectually relieved, by simple remedies internally administered.

Case I. *Otitis media purulenta acuta. Marked constitutional disturbance, fever, and very severe pain. Relief in twenty-four hours from administration of aconite and belladonna. Patient discharged cured in one week.*—*Feb. 11.* Female, æt. eight, had pain in left ear, with discharge, two years ago. She attends a public school, where she is constantly exposed to cold draughts of air from the windows, which are opened to admit fresh air into the room when overheated by the steam radiator. Three days ago, after attending school, patient complained of pain, tinnitus, and deafness in her right ear, accompanied by marked constitutional disturbance, nausea, vomiting, and fever. Pain also in the left ear this morning. On examination, the membranæ tympanorum were found to be intensely and uniformly hyperæmic, denuded, and bulging; no perforation, however, being visible. Patient could hear ordinary voice in both ears. She was restless and in much pain. Temperature 102.2°, pulse 130. The treatment consisted of minute doses of tincture of aconite and extract of belladonna, given at frequent intervals, to control the pain; calx sulph. (gr. $\frac{1}{30}$) every two hours. It was hoped that the inflammation would take a regressive course, and paracentesis, therefore, was not performed.

12th. The right membrane has been ruptured, the pain has subsided, and there is a watery discharge. Aconite and belladonna discontinued.

14th. Patient has been resting well, and is free from pain. The discharge from right ear is more profuse, and of a purulent character. Canal syringed, and powdered boracic acid insufflated. The left canal is red and tender, the membrane fleshy and bulging slightly, but no perforation. Continue calx sulph.

15th. Condition improved and discharge diminished. Boracic acid insufflated. Left membrane less bulging and injection subsiding. Calx sulph. (gr. $\frac{1}{30}$) every four hours.

18th, No discharge from right ear; canal filled with dry powder. The left membrane is clearing up. Calx sulph. discontinued.

Case II. *Neglected case of otitis media purulenta acuta, and periostitis externa. Catarrh of upper air-tract. Decayed teeth. Poor physical condition. Discharged cured in fourteen days.*—Male, æt. fourteen, is a subject of nasal catarrh, and has suffered at times from pain in left ear, during past month constantly, in addition to which has been troubled with tinnitus and deafness in the same ear. After an exposure, eight days ago, left ear began discharging, accompanied by swelling and pain in the mastoid region. On examination the left membrana tympani is found bulging, injected, and fleshy in appearance. By the Valsalvan experiment, pus is forced through an opening in the posterior inferior segment. The left auricle is unduly prominent, owing to an extension of the periostitis externa, and there is a fluctuating swelling over the mastoid. Patient hears ordinary voice with left ear. Right ear normal.

The treatment was the same as in Case I. The abscess was incised. Pain ceased entirely in two days, and discharge in five. Two weeks afterward the left drumhead was found to be healed, but opaque and lustreless; patient could, however, hear low voice distinctly with left ear.

Case III. *Acute inflammation of attic and membrana flaccida. Severe pain, relieved in two days. Discharged, cured, in two weeks.*—Male, æt. eight. No previous ear trouble. For past five weeks much pain, at times very severe, in right ear, with scanty discharge. Loss of sleep and appetite. On examination free purulent discharge from right ear is found, and only the membrana flaccida of drumhead is seen, the same being fleshy in appearance and concealing the upper segment of the membrane. Hears ordinary voice with this ear. Left ear normal.

Aconite and belladonna were given to allay pain. Calx sulph., at first every two hours, afterward less frequently. Pain subsided in two days, and discharge ceased in eight. Fourteen days later the canal dry, and drumhead (right) resuming rapidly its normal condition.

Case IV. *Foreign body in ear, subsequently acute otitis media purulenta, caused by sea-bathing. Carious teeth. Severe pain, relieved in two days. Discharged, cured, in eight days.*—Male, æt. eighteen, had a pea removed from left ear about ten years ago, and since then hearing in that ear impaired. Twenty-four hours subsequent to sea-bathing five days ago, patient complained of pain, tinnitus, and deafness in left ear, which have prevented sleep. Yesterday first noticed discharge. On examination the walls of left meatus externus are found swollen and denuded; the drumhead inflamed and bulging, with small perforation in the posterior inferior segment. Only loud voice heard in left ear. Right ear normal. Catarrh of upper air-passages not marked. One carious tooth in left lower jaw.

The treatment here was the same as in Cases I., II., III. Pain had entirely ceased by the second day, the discharge being copious. The latter, however, ceased by the eighth day, when drumhead was found to be clearing up.

Case V. *Acute inflammation of the middle ear. Autophonia. Pain relieved in three days.*—Male, æt. twenty-seven, has long been subject to earaches. Head catarrh not marked. Whilst working is obliged often to stand knee-deep in water. For the past week pain and throbbing in left ear, accompanied by autophonous phenomena. Has used instillations of laudanum, but with no relief from pain. The examination shows left canal with muco-purulent matter, the drumhead fleshy in appearance with a small perforation in the posterior inferior segment. Hears ordinary voice with affected ear. Right ear normal.

Treatment as in previous cases. Pain and discharge had ceased by the third day. The dry powder in canal was left undisturbed for a time.

Case VI. *Acute purulent inflammation of both middle ears. Frequent "colds." Rhinitis. Hypertrophied tonsils. Carious teeth. Discharged cured in eleven days.*—Female, æt. eight, long subject to colds in the head, toothache, and pain in the ears. After exposure four weeks since, had pain, tinnitus, and deafness in right ear, followed shortly by a discharge. These symptoms ceased in one week, but reappeared

three days ago, accompanied by pain and a discharge from left ear.

Both canals were found filled with purulent matter. The right drumhead not seen, the left uniformly congested and bulging. Ordinary voice heard in both ears. Rhinitis marked and tonsils hypertrophied. On the right side of lower jaw were two carious teeth.

The same treatment as in the other cases was followed. Pain had entirely ceased by the second day. Insufflations of boracic acid powder were made every third day, and by the eleventh day the discharge had ceased. Patient regained normal hearing in three weeks.

Case VI. *Acute purulent inflammation of middle ear. Severe pain, relieved in two days.*—Male, æt. three. No previous ear trouble. For past five weeks child has been suffering with pain in right ear and discharge. Pain especially severe during last few days.

On examination right canal found filled with purulent matter. Membrane could not be seen. Hears ordinary voice with right ear, low voice with left,

In this case also the treatment mentioned above gave satisfactory results, the pain having entirely ceased in two days, the discharge being very slight. Fourteen days later, when patient was next seen, the canal was found to be dry and the membrane clearing up. There had been no discharge for several days. Patient could hear low voice in affected ear.

It is notable that in the case where inflammation was confined to the attic mainly there was less deafness than where the antrum was the principal seat of trouble.

MEDICAL PROGRESS.

Chromic Acid in Diseases of the Upper Air-passages.—Rethi records the use of chromic acid as a caustic application in over sixty cases, including chronic hypertrophic rhinitis, adenoid vegetations in the nasopharynx, chronic hypertrophic pharyngitis, and circumscribed swellings in chronic laryngeal catarrh. One or two crystals of the acid are placed on the end of a silver sound, which is then gently heated to remove all water of crystallization. If the heating be too rapid, or be continued till the film formed at the end of the sound assumes a green tint, the caustic properties of the acid are lost. Prior to the application the parts affected are washed with a 5 to 10 per cent. soda solution, which washing is repeated after the burning. No evil after-effects were noted in any case.—*Centralb. f. Chirurgie*, Jan. 2, 1886.

The Nature of Nerve Force.—In contradiction to the view that nerve fibres are fatigued by the transmission of stimuli, Bowditch, of Harvard, has, in the following experiments, conclusively shown the absence of such fatigue in the nerves of warm-blooded animals.

A cat was etherized, and the sciatic nerve divided near the sacrum. A pair of shielded electrodes was then placed upon the same nerve lower down in the thigh. The tendon of the tibialis anticus was dissected out and connected with a lever which recorded the contraction of the muscle on the smoked paper covering a cylinder revolving once in twelve hours. The secondary coil of an ordinary induction apparatus was then connected with the electrodes and the minimum intensity of stimulation requisite to produce a tetanic contraction of the muscle was determined. The animal then received a dose of curare (0.007–0.01 grm.), sufficient to prevent muscular contractions, and the irritation of the nerve was steadily maintained while the animal was kept alive by artificial respiration. In the course of an hour and a half to two hours the curare was so far eliminated that the stimulation of the nerve, which previously had been without effect, began to produce muscular twitches which, as the elimination of the drug progressed, became more frequent and more violent. A true tetanus, however, was never observed.

In some of the experiments a second dose of curare was given, when the muscle began to twitch, and the experiment continued till the drug was a second time eliminated. In this way it was found that stimulation of the nerve lasting from an hour and a half to four hours (the muscle being prevented from contracting by curare) did not exhaust the nerve, since on the elimination of the curare the muscle began to contract.

Physiologists have long been in the habit of comparing nerves to telegraph wires, since they seem to be indifferent conductors transmitting impulses equally well in both directions.

It would appear from these experiments that the absence of fatigue in consequence of activity is another very interesting point of resemblance.—*Journal of Physiology*, vol. vi. No. 3.

Removal of Thyroid Body.—Horsley has presented before the Société de Biologie the results of his observations upon the effects of the removal of the thyroid body in monkeys. In the animals so treated the wound healed by first intention, death occurring, however, in from five to six weeks, with all the symptoms of myxœdema. There is at first a trembling of the hands, analogous to that seen in exophthalmic goitre, later functional paralysis, resembling paralysis agitans, with the early appearance of cretinism, then death, with sudden fall of temperature.—*Gazette Hebdomadaire*, Jan. 8, 1886.

On the Action of Antipyrin upon the Temperature and Tissue Changes of Children during Fever and in Health.—Dr. Jacubowitsch has detailed his observations upon the use of antipyrin in the following eleven cases, viz., four of typhoid, one of tubercular meningitis, two of miliary tuberculosis, and four children in good health. The experiments appear to have been conducted with thoroughness and care. The dose given within twenty-hour hours varied from 15 grains to a child of two years old, to 105 grains to a healthy child of seven years. The following were the results: Antipyrin lowered the temperature in all cases, but to a very slight degree in the healthy children. The amount of fall in the temperature did not always depend on the dose. After even the largest doses, the temperature did not remain at its lowest point for more than twenty hours. The greatest fall occurred about midnight, after which the temperature gradually rose. In healthy children, even large doses fail to lower the temperature to the same extent as in the feverish. Young children take large doses well for from one to two days. In most of the cases the quantity of urine was diminished to the extent of nearly one-half; it was very concentrated, and the specific gravity was increased. The

quantity of urea, uric acid, sodium chloride, phosphoric acid, and sulphuric acid was notably diminished during the use of antipyrin. Forty-eight hours after the last dose, the daily quantity of all these urinary constituents was greater than before the drug was given. The author feels some hesitation in recommending the use of antipyrin in fever cases, because, in spite of its undoubted antipyretic power, it could not safely be used for any length of time, if the remarkable retention of the products of oxidation which he observed is confirmed by further experiments.—*Edinburgh Medical Journal*, February, 1886.

The Use of Oil of Turpentine for the Removal of Insects from the Ear.—Köhler, of Posen, has for six years discarded the use of tobacco, chloroform, and instruments in the removal of minute insects from the ear. He recommends that the head be inclined to the sound side, and the external meatus filled with oil of turpentine, which should be allowed to remain for five minutes. At the expiration of this time the ear is washed out with a syringe, with the almost constant result of removing the intruder.—*Revue de Thérapeutique*, Jan. 15, 1886.

Antipyrin and Calomel Compared in Pneumonia.—The *St. Petersburg Weekly Clinical Gazette* publishes some observations which have been made by Dr. Posadski, under the direction of Prof. S. P. Botkin, on the comparative results of the antipyrin and calomel treatments in croupous pneumonia. He thus treated a group of twenty-five cases with antipyrin alone, giving from half a gramme to two grammes (seven and a half to thirty grains) for a dose, and one to eight grammes (fifteen grains to two drachms) per diem. A second group of twenty-three cases, as similar as possible to those of the first group, was treated with calomel in doses of one-eighth of a grain four times a day. The average age of the patients in the first group was twenty-seven years and a half, and that of those in the second twenty-five years and a half. Those treated with antipyrin retained their full consciousness, but in the course of two or three days failed greatly in strength, the heart's action becoming exceedingly weak. They suffered from cough, and with difficulty expectorated a small quantity of slightly tinged sputum. After the first few doses there was a fall in the temperature, but not of a permanent character; sometimes, indeed, there was no fall at all, and when there was, notwithstanding the continuance of the drug, a rise followed. The crisis took place with a fall of temperature on the average on the seventh day of the disease, the mean number of days of fever being 8.1, but the local physical signs lasted 13.5 days. Complications occurred in nearly all the cases, sometimes being of a serious nature, collapse even being noted. In the urine there was nearly always albumen in considerable quantity, also antipyrin. The fall in weight averaged 20.34 zolotniks (about twenty-seven ounces), which was less than the mean fall of the patients treated with calomel, but the latter recovered their weight more rapidly during convalescence. When the doses of antipyrin were frequent, vomiting was often induced, and in two cases an antipyrin rash made its appearance. Those treated with calomel frequently presented a typhoid condition, and in some cases there was delirium. They were not much distressed by cough, the sputum was expectorated easily and in considerable quantity, and they did not suffer from sweats. The temperature rose high. The mean duration of the fever before the critical fall was 7.1 days, which was generally accompanied by drenching perspiration. The local physical signs lasted on the average nine days (against 13.5 in the other group). There was rarely albumen in the urine, and when it existed there were only traces. Complications were infrequent. The general conclusion arrived at was that antipyrin, in spite of its power of reducing fever, has no beneficial effect on the course or result of the disease.—*Lancet*, Jan. 30, 1886.

Hopeine as a Hypnotic.—Eloy records several cases in which hopeine was employed with advantage as a hypnotic. The mean daily dose for an adult was found to be three-tenths of a grain, and was best administered in pill form. Eloy summarizes his results by describing hopeine as a fairly reliable hypnotic, of relatively slight toxicity, which is indicated in cases where opium cannot be prescribed, and which is useful in insomnia where pain is not the cause.—*L'Union Médicale*, Jan. 23, 1886.

Effects of Cocaine on the Central Nervous System.—In a paper read before the Chicago Medical Society, Dr. D. R. Brower thus summarizes his experience as to the use of cocaine in various neurotic troubles:

1. Cocaine, in small or moderate doses, is a cerebral stimulant, but produces derangement of the digestive and assimilative functions, and diminishes the elimination of waste products.

2. The use of cocaine in the alcoholic and opium inebriates is not satisfactory; while it is a more or less perfect substitute, yet its use is attended with greater danger than alcohol or opium.

3. The use of cocaine in mental depression, if we carefully guard against the depressing effects of the drug upon digestion and assimilation, will often give better results than any drug hitherto used.

4. The use of cocaine in neurasthenia is a valuable addition to the treatment.

5. The drug, if administered in large doses persistently, causes a very marked deterioration of the central nervous system, producing a profound cerebral neurasthenia, and may produce such a malnutrition of the cerebrum as to develop insanity.

6. Cocaine, occasionally, in doses heretofore regarded as small, produces alarming depression of the central nervous system.—*Am. Prac. and News*, Feb. 6, 1886.

Antidysenteric Powder.—The following formula is praised by Schmitjan, as being laxative and antiseptic, and at the same time possessing a beneficial topical action upon inflamed and ulcerated surfaces, comparable to the action of the sulphurous waters:

Sulphur, sublimed and washed,	
Powdered fennel seeds . . .	āā 1 part.
Powdered sugar,	
Powdered gum-arabic . . .	āā 2 parts.

Mix. A teaspoonful every three hours, in the subacute or chronic forms of dysentery. The treatment is commenced by an emetic of ipecac.—*L'Union Médicale*, Jan. 17, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, FEBRUARY 27, 1886.

THE PHYSICAL SIGNS OF MITRAL STENOSIS.

IN THE NEWS of Feb. 6th we referred to certain problems in the general pathology of mitral stenosis, and we propose, on this occasion, with the help of the valuable papers of DRS. FLINT and BROADBENT, in the *American Journal of the Medical Sciences*, Jan. 1886, to discuss briefly the physical signs of this important condition.

While, as a rule, practitioners readily make a diagnosis in cases of mitral regurgitation or of aortic valve disease, the reverse may be said to hold good of mitral constriction, which, as Broadbent says, presents greater difficulties in diagnosis than any other disease of the valves. And yet, in many instances, when once the characters are known, no affection is more quickly or more easily recognized. The chief trouble arises from the fact that the physical signs in a given case may be variable at different times, and unless this is understood serious confusion may result. Broadbent's careful study of this condition has led him to recognize three stages of the disease. In the first stage, not much change is noticed in the dimensions of the heart, but the pathognomonic sign is a rough, blubbering, vibrating murmur preceding the first sound and heard in a limited area at the inner side of, and usually a little above, the apex beat. On palpation a thrill is perceptible to the hand at the same spot. The peculiar limitation of the murmur and thrill is one of its most remarkable characters. By the great majority of writers the rough presystolic bruit is held to be distinctive of mitral stenosis, but Flint brings forward evidence to show that in very rare instances it may be present without constriction of the orifice. As a result of backward-pressure in the pulmonary circulation, the second sound at the second left costal cartilage is accentuated, and from a lack of synchronism in the closure of the aortic and pulmonary valves there may be reduplication. To these well recognized signs Broadbent adds another, the intensification of the second sound at and beyond the apex.

The second stage is characterized by the disappearance of the second sound at the apex and by the short sharp valvular character of the first sound, which, in reality, resembles closely the second sound. Indeed, as Balfour pointed out, the mistake is very commonly made, and the murmur is regarded as a rough systolic, followed by a sharp second sound. It may be extremely difficult, in these cases, to determine accurately the relation of the sounds to the cardiac systole, particularly if the action is rapid, but by finding a spot where both sounds are audible and distinct, and following them from this point, it can usually be determined which of the two disappears as the apex is approached. A satisfactory explanation of this remarkable alteration of the first sound has not been given. It is much more intense and valvular than when the mitral curtains are normal. Flint holds that it is due to the changes in the valves; Broadbent ascribes, and, we think, more correctly, the modified sound to the ventricular wall. The ventricle is imperfectly distended, and at the first movement of contraction the walls meet with no resistance, but are "suddenly brought up and made tense when resistance is encountered, and so produce the sharp sound." The disappearance of the second sound at the apex is accounted for by the overlapping of the left ventricle by the large right chamber, which occupies the apex, and thus prevents the conduction of the aortic sound to the surface; and, again, the diminished output of the left ventricle does not fully distend the aorta, and the recoil on the valves, which causes the sound, is consequently weak. In this stage there may also be heard a mitral diastolic murmur, preceding the pre- or auricular-systolic murmur, and corresponding to the period of active dilatation of the ventricle. As Dr. Flint remarks, this murmur claims more attention, clinically, than it has hitherto received.

The third stage is characterized by the disappearance of the presystolic murmur altogether, and there is heard only the loud, sharp, first sound and, perhaps, a systolic tricuspid murmur. The true state of affairs may now be completely overlooked in the absence of a murmur and of marked hypertrophy. Broadbent states that he has known the heart at this stage to be pronounced normal. There can be no question of the very common disappearance of the presystolic murmur in the late stages. Cases are frequently sent to the post-mortem room in which the murmur has been absent during the stay in hospital, and yet the

mitral constriction has been marked. And again, in cases admitted with pulmonary complications or dropsy, the presystolic murmur may not be present on admission, but may develop under observation, as the serious symptoms subside. Broadbent attributes the disappearance of the murmur to the establishment of tricuspid stenosis, and reflux into the right auricle, which so lowers the pressure on the pulmonary veins and left auricle that the force of the current through the mitral orifice is not sufficient to generate sonorous vibrations.

The condition of the mitral segments in stenosis is such that complete closure during ventricular systole is impossible, and we must suppose more or less regurgitation. A systolic murmur is not, however, always audible, though it can sometimes be developed when the vigor of the heart's action is increased by exercise. But there may be no regurgitation even when the valves are quite incompetent, for the pressure in the auricle may be such that no reflux of any moment can take place into it and the blood from the ventricle escapes more readily into the aorta, where there is a minimum pressure.

So long as the presystolic murmur is well marked and both sounds can be heard to the left of the apex, patients with mitral stenosis do not appear to suffer much inconvenience, and Dr. Flint testifies to the tolerance of this state for years. In the second and third stage, though not necessarily attended with serious symptoms, the patient suffers more or less inconvenience, and there are evidences of an embarrassed circulation.

What seems so clear and distinct on paper may, however, present an inextricable problem when the stethoscope is placed over a rapidly acting heart, but in any case the difficulty in diagnosis will be materially lessened by a careful study of the directions so admirably laid down by Dr. Broadbent.

DILATATION OF THE UTERINE CAVITY.

DILATATION of the cervical canal is an operation not unfrequently required for diagnostic or for therapeutic purposes; in the former, for example, for the recognition of a neoplasm in the uterine cavity, and in the latter to make its removal possible, or for the removal of remnants of the ovum therein remaining after miscarriage or labor. This dilatation was, for a time, very generally effected with sponge tents, but the danger of septicæmia has led to their almost entire abandonment. Sea-tangle in some degree displaced sponge, but now most of those who use gradual dilatation prefer tents of tupelo. But there is an objection to all three of these in the fact that the dilatation requires several hours, or, it may be, two or three days, and the longer the period occupied the greater the danger of septic infection.

The late Dr. Peaslee, many years ago, devised a series of metal dilators, but these were more for local effect than for obtaining ready access of fingers or instruments to the uterine cavity. Hegar has made hard-rubber dilators, conical at the uterine end, and having the external end flattened so as to form a handle. Independent of the handle, they are five or six inches in length, and several constituting the set, their successive increase in diameter is only one millimetre; they are numbered so that they may be used in continuous order until sufficient dilatation has been accomplished. The dilators are thoroughly washed and disinfected after being used: when again employed they are dipped in a five per cent. solution of carbolic acid, and each one, before its introduction, is covered with five to ten per cent. carbolized oil. In general, an hour, often less, is sufficient time in which a dilatation permitting the introduction of the finger into the uterine cavity, is accomplished. Hegar justly observes that the advantages of this practice are evident. Complete dilatation is made much more rapidly than with the sponge or by other means, and is much more agreeable for the physician, and especially for the patient. The antiseptic method can be strictly applied. The hard-rubber, which is smooth, does not present the inconveniences of dilators that change in volume. The brief duration of the operation, greatly lessens the danger of infection. Having used Hegar's dilators several times, we greatly prefer this method to that of dilating with any of the various tents.

Quite recently, another method of dilating claims professional attention: it is called "the new method of Professor Vulliet to effect dilatation of the uterine cavity, in conditions which permit direct inspection of this cavity," and is described by BÉTRIX in the January number of the *Nouvelles Archives d'Obstétrique et de Gynécologie*. In this method the patient occupies the knee-chest position, and the perineum is lifted up by a Sims's speculum, as large a blade as possible being used; the next step is by means of a uterine sound, or a urethral bougie, or some similar instrument, or a two-bladed dilator, to begin the process of dilatation. Following this, is the introduction into the uterus of iodoform cotton tampons; these are small, none larger than an almond, and have been prepared by having a double thread passed through each, after which the cotton is dipped in a 10 per cent. ethereal solution of iodoform, dried rapidly, and then kept in a well-stopped flask.

One after another of these cotton balls is pressed into the uterus until the cavity is filled; the threads hang out of the vulva and may be tied together so that all the tampons may be removed at once. They are left in the uterine cavity for twenty-four, or even forty-eight hours, when they are removed; if necessary, the cavity is washed out and fresh tampons, in a greater number, introduced; these in turn are removed

and others introduced, the number being each time increased. If a rapid dilatation is necessary after the first applications of the iodoform tampons, the uterine cavity being in a state of complete asepsis by the former means, laminaria may be used, three or four of such tents being introduced in a single bundle. But the laminaria causes more pain than the cotton, it necessarily produces some traumatism, and it is impossible to have the tents completely aseptic; the cotton alone will always cause complete dilatation, though requiring a much longer time than when assisted by the means just mentioned. When the dilatation is completed and has been regularly made, the neck is effaced as completely as it is at the beginning of labor.

The time required for dilatation varies according to the state of the uterus and the degree of the resistance of the neck; in one case of fibrous polypus, the interior of the uterus was visible on the third day, in a case of cancer nine days were required, while in a third patient it was not until after five weeks' dilatation that this end was attained; usually a period of fifteen days is necessary.

After such dilatation photographs of the interior of the uterus have been taken, and also moulds both of rubber and of plaster of Paris have been made.

Such complete dilatation that the entire interior of the uterus is made visible, must be rarely necessary for diagnostic or for therapeutic purposes, and therefore a period of fifteen days, the average time for such expansion, can only very seldom be advisable; in almost all cases a week, or even less will be sufficient time to occupy with this process. Even then the contrast between seven days consumed in finding out what is the pathological condition, and preparing for a suitable operation, seems a very long time in comparison with a single hour which will be occupied in attaining the same ends by Hegar's dilators. Nevertheless, we see that Prof. Vulliet's plan presents some important advantages in certain cases, and it must take its place among the valuable means of diagnosis in some intrauterine diseases, and prepare the way for their appropriate treatment.

RESPONSIBILITY IN THE PREPARATION OF MEDICAL CERTIFICATES.

A SUIT was recently tried in one of the courts of this city against two physicians who, it is alleged, negligently certified to the existence of insanity, through which damages resulted from subsequent confinement in a hospital for the insane. In the city of New York a physician has been sued for reporting, erroneously, as it was alleged, a case of smallpox which was removed to a hospital under the regulations of the Board of Health. It is not proposed to retry these cases in the medical press, or to enter into the merits of the mooted issues which terminated unfavorably for the defendants. The nature of the responsibility of medical men who perform duties delegated to them or required of them by law, is, however, a question in which the whole profession has an interest and it should assert its prerogatives.

The law, in assuming to regulate matters pertaining to the public health, requires that the existence of contagious diseases be reported to a central designated bureau. In the case referred to, a report of a supposed case of smallpox was made, but it turned out that a difference of opinion subsequently existed among the doctors as to the exact nature of the disease, and, although the physician did not convey the patient to the hospital but she was removed there by the Board of Health, yet the learned judge instructed the jury that the doctor started the machinery, and they accordingly brought in a verdict of $500 damages.

The lunacy law of Pennsylvania, aiming to surround the admission of the insane to hospitals by greater safeguards, provides for their commitment on sworn certificates of two physicians. It also provides for the creation of a body of qualified examiners, and defines their qualifications. A conscientious performance of a duty enjoined by law for the preservation of the public health, and the exercise of the functions of a qualified examiner in lunacy by physicians declared by law to be qualified, ought to be accompanied by an assurance of exemption from the consequences of a possible erroneous judgment. It ought not to be assumed that an opinion about a question, in its nature strictly scientific, can be infallible. Is not the overburdened calendar of our Supreme Court a sad commentary on the fallibility of the judgment and errors of the courts below! It can hardly be held, as has been assumed, that a medical certificate which may prove to have been erroneously made was an act in the nature of malpractice. The physician may in the one case perform a compulsory duty, and in the preparation of a lunacy certificate he does not advertise his ability to furnish an unquestionable opinion, but he may do what the law states plainly he is qualified to perform. In the execution of acts which are compulsory or ministerial, unless it can be shown that the physician was guilty of fraud, negligence, or of being a party to a conspiracy, there should be an exemption from penal consequences. The time has arrived when there should be a judicial determination of the privileges and rights of the medical profession in their newly created relations to the community.

In view of the facilities which exist for vexatious litigation, there is much hesitation on the part of physicians to furnish a certificate of insanity, even in cases in which, in their judgment, it clearly exists. Some positively decline, while others do not act until the disease is so manifest that an average juryman may

come to a conclusion. Others are disposed to exact an indemnity bond or charge large fees to cover the risks they feel they assume. A procedure ostensibly intended to protect the sane may in its practical operation become the means of doing injustice to that class of the insane whose only hope of recovery is treatment in the early stage and before decided changes and chronic conditions have been permanently established. It is public policy to encourage prompt treatment of the insane, and the recognition of the earliest symptoms. It is not believed that with the safeguards embodied in the law, with a Lunacy Committee possessing ample powers of inspection, with its doors always open, any serious abuses or mistakes can occur. The profession may, under the circumstances, properly ask the Committee of Lunacy to consider whether some further legislation is not necessary to protect its members from vexatious litigation, or that the Courts, on a proper occasion, will more clearly define and determine their rights, privileges, and exemption from responsibility.

THE USE OF ANTISEPTICS IN LABOR.

THE *Journal d'Accouchements* of January 30th contains a brief report of the Maternité de Liége for the year 1885, by the Surgeon-director, DR. N. CHARLES. Of three hundred and forty-four women admitted during the year only two died; there were fourteen cases of mild septicæmia, but in eighty-five per cent. of the entire number of women delivered the puerperal period was absolutely normal. There were three cases of eclampsia, and also three of placenta prævia; there were ten applications of the forceps, three podalic and two cephalic versions, and eight cases of perforation of the cranium, seven of these being followed by the use of the cephalotribe, or of the cranioclast; beside these, some other operations were done, making in all thirty-six operations. So low a mortality and so slight a morbidity in a lying-in hospital are worthy of attention. Dr. Charles attributes these happy results to the use of corrosive sublimate as an antiseptic, but he especially insists upon the most minute antiseptic precautions from the end of pregnancy, or, at most, from the first time touch is made during the labor.

A recent communication from CHIARA, an abstract of which is found in the first number of the *Nouvelles Archives d'Obstétrique et de Gynécologie*, also urges the importance of antisepsis during labor. The author believes that in order to render the utero-vaginal canal aseptic during the expulsive period, or at the moment of beginning any operation, the spray of carbolic acid should be used, and that after the labor thorough and large washing of the utero-vaginal canal should be made by a corrosive sublimate solution, 1 to 1000, but from this time no examination of the genital organs is performed, and no injections are used.

Notwithstanding the high reputation of Chiara, it is doubtful whether, even in hospital, still less in private, practice, obstetricians will generally adopt the plan of delivery under carbolic acid spray. The exposure, discomfort, and the possible chilling of the patient, are serious objections. Moreover, we would hesitate to use so strong a solution of the corrosive chloride as advised by Chiara, fearing possible poisoning, and, besides, there is good reason to believe that a solution not half so strong is equally efficient.

Abstinence from vaginal injections after the thorough cleansing following labor is a part of the practice which will be most readily accepted, for, unless special symptoms occur, there is no indication for such injections.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, February 18, 1886.

THE PRESIDENT, A. JACOBI, M.D., in the CHAIR.

DR. H. D. CHAPIN read a paper on

RHEUMATISM IN EARLY LIFE.

It is a subject, he said which, in view of its great importance, has not received sufficient attention on the part of the profession. Although generally very insidious in its advances, rheumatism is an affection which is continually crippling children for life. Having stated that his remarks would be principally based on an analysis of 76 cases which had occurred under his own observation, he gave a *résumé* of the opinions of various authorities on the diseases of children in regard to the subject, referring particularly to a monograph of Dr. A. Jacobi, published in 1875, in which it was stated that rheumatism was frequent and insidious in early life. J. Lewis Smith had stated that it is scarcely less common in children than in adults, but that it is frequently overlooked. Most authors, however, seem to think that it is not a very common disease in childhood.

Of the 76 cases referred to, the number of cases at different ages were as follows:

6 months	1
11 "	1
20 "	1
3 years	1
4 "	2
5 "	4
6 "	6
7 "	3
8 "	6
9 "	9
10 "	10
11 "	8
12 "	7
13 "	9
14 "	4
15 "	2
17 "	2

During infancy the disease is, apparently, not very common. In Dr. Chapin's three cases, occurring in infants of six, eleven, and twenty months respectively, however, there were well-marked attacks of acute rheumatism, and the diagnosis was rendered the more positive by the fact that in each of the three instances one or both of the parents had also suffered from rheumatism.

In regard to heredity, he said that it seemed to him an undoubted fact that some state is inherited which will develop rheumatism under favorable conditions. It is a rheumatic tendency, rather than the disease itself, that is inherited, as is the case in syphilis. Having referred to the statistics of other writers, he stated that in the great majority of his own cases either one or both of the parents had had rheumatism.

In early life rheumatism attacks more females than males. Of his own cases, 50 were girls and 26 boys; and in 69 cases tabulated by Goodhart, 42 were in girls and 27 in boys.

As to the part of the body affected, in 43 out of his 76 cases the lower extremities alone were affected, and in 40 of these the knees were involved. In 23 cases both the upper and lower extremities were affected, and in 3 the upper extremities alone. In two cases the plantar surface of the feet bore the brunt of the attack.

Pain, as a rule, is not very severe. In children able to express their feelings, the trouble is described more as a stiffness and soreness of the limbs. There is generally little or no rise of temperature. A decided tendency to repetition was observed, and in one case there were as many as six distinct attacks.

A general feature is marked hydræmia, and this is to be regarded as an important factor both as regards diagnosis and treatment.

The absorbing interest in rheumatism in early life, however, centres about the heart. Senator states that the younger the patient the greater the danger of cardiac complications. Having quoted various other authorities in regard to the frequency of heart-trouble, Dr. Chapin said that in 26 out of his 76 cases, or one-third the whole number, there was organic valvular disease, and in 18 of this number there was a mitral regurgitant murmur. Of Goodhart's 69 cases, 15 had organic disease of the heart, and 5 others had pronounced symptoms of cardiac disturbance. It is worthy of remark that endocarditis is by no means so serious in children as in adults, and therefore it may entirely escape observation. It appears to him, he said, that the heart becomes affected only after several attacks of rheumatism, and hence it can be seen how very important it is to make an early diagnosis of the latter disease, and place the patient under appropriate treatment, in order to ward off subsequent attacks, with increased danger of cardiac complication. The proportion of these cases in which the heart becomes involved, as compared with the proportion in adults, has not as yet been definitely determined.

Chorea, as is now generally recognized, has a direct connection with rheumatism. In thirty-two cases of chorea which he had tabulated in a paper read before the New York Neurological Society in 1883, Dr. Chapin found that twenty-two had been preceded, or were accompanied by rheumatism: and he thought it possible that the two affections, as well as the heart trouble so frequently met with in each, were due to a common cause. In individuals in whom all these are found, the usual sequence is, first, the rheumatism, then the chorea, and finally the cardiac affection. There can be no possible doubt that rheumatic children are peculiarly liable to suffer from chorea. Again, parents with rheumatic tendencies may have children affected with chorea, but not with rheumatism. In many of Dr. Chapin's cases chorea did not appear until after several attacks of rheumatism.

In rheumatism in children the mucous as well as the serous surfaces are liable to be attacked. Goodhart says of tonsillitis, that there is a growing frequency of assertion that it is a rheumatic ailment, generally as preceding the attack. Dr. Chapin had met with fifteen instances in which acute tonsillitis appeared before, during, or after attacks of rheumatism. This association of the two affections cannot be proven to be anything more than a coincidence; but it is so frequent as to have attracted the attention of a number of observers.

Having mentioned other complications which he had seen, such as pleurisy (in some cases), cellulitis, and anterior poliomyelitis, he went on to speak of the diagnosis, which, he said, must be generally based on a collection of quite a number of symptoms. We must often depend on what Goodhart aptly calls the composite of the disease. Generally speaking, rheumatism in children is wanting in the severity of any one symptom. One point is, that rheumatic pains usually go from one joint or set of muscles to another. Others to be noted are, the history of the parents, the condition of the heart, the presence or absence of chorea, hydræmia, indigestion, and throat trouble. It is probable that rheumatism is sometimes mistaken for malaria, since it is found that salicylate of sodium will give relief in cases where quinine is not followed by beneficial results. It must not be forgotten, however, that quinine is often very useful as a tonic in rheumatism.

As to the pathology, Dr. Chapin believes that the acid theory is correct. It is probable that two allied acids are concerned in the production of the disease: lactic acid, which is often the result of fermentation from indigestion, and sarco-lactic acid, which is developed in the muscles.

It is highly important to check the rheumatic tendency at the outset, if possible, where it is hereditary, and to this end all appropriate hygienic and preventive measures should be adopted, among which may be mentioned a diminution in the quantity of saccharine and starchy food allowed, and the constant wearing of flannel. In an attack of rheumatism, Dr. Chapin is accustomed to commence the treatment with a dose of Rochelle salt, followed by oil of wintergreen and salicylate of sodium. If any disturbance of the heart is shown, he insists on the most absolute repose in the recumbent position. When endocarditis or pericarditis is present, bodily exercise may be of the greatest possible mischief; as irreparable damage to the heart may ensue if prolonged rest is not secured. This he regards as a point of very great importance. The heart is comparable to an inflamed joint which needs rest more than anything else, and it seems probable that in many cases if the organ can be rested, as far as possible, for several months, the danger of permanent damage may be averted. The long-continued use of such agents as

iron and cod-liver oil should also be resorted to. Dr. Chapin believes that even when valvular disease is present, by appropriate treatment it may sometimes be caused to disappear. At all events, it is of extreme importance that valvular disease should be recognized at the earliest possible period.

DR. JOHN C. PETERS said that the manifest and clearly defined acute rheumatism of children is so much like the same affection in adults that its consideration does not call for special attention. It is the much more common indistinct forms, which none the less give rise to other troubles, particularly cardiac affections, that the profession needs to be especially on its guard against. He thought that the majority of cases show no articular disease, the affection manifesting itself principally in stiffness and soreness in the muscles. Of course, no intelligent physician now ever attends a child suffering from rheumatism without examining the heart every day. He had seen a number of cases of children who merely had a little soreness in the muscles and a little fever perhaps, suddenly taken with shortness of breath and pain in the chest, when an examination of the heart would show the presence of acute rheumatism. He had seen such cases recover perfectly, so far as the general health was concerned. In the course of a year or more, however, there would be a relapse, and then there would be other relapses, and finally the patient would die of valvular and hypertrophic disease.

In chorea he had observed a large number of children with valvular disease. In the same way these patients might recover their general health, but afterward have relapses in the same way as those who suffered from rheumatism.

He then went on to say that he had been in the habit of regarding a large number of catarrhal affections as essentially rheumatic. Rheumatism of the throat is to be recognized by the difficulty of swallowing which characterizes it. In such cases there is usually very little redness or other trouble that can be distinguished by the eye. He had also seen several instances of dysentery where the intestinal trouble disappeared on the breaking out of rheumatism elsewhere in the system, and he regarded the affection under the circumstances as rheumatism of the colon.

Dr. Peters said that there was no doubt in his mind that the acid theory of the causation of rheumatism is the correct one. It is not certain precisely what the acid is, but there is a considerable amount of evidence to show that it is lactic acid.

In the treatment he is in the habit of making potash the basis of all his remedies, as he considers it preferable to soda. He has used tepid alkaline baths with very good effect, and warm powdered chalk is also an excellent application, particularly when there is much perspiration. Phosphate of soda is about the only soda salt which he ever employed in rheumatism. The debility and anæmia which attend the disease are very great, and for the relief of this condition he has found the tartrate of iron and potassa excellent. The potash is also of much service in diminishing the excessive amount of fibrin in the blood in rheumatism. He thought it altogether a mistake to suppose that this alkali is more debilitating to the system than soda.

DR. J. LEWIS SMITH said that he had notes of seventy-three cases of rheumatism in children. Whether there was or was not a *materies morbi*, such as lactic acid, in this affection, he had observed two principal exciting causes, viz., taking cold, and scarlet fever. Inherited predisposition was also common, and he found that it had been specially noted that rheumatism had occurred in one or both parents in eighteen out of his seventy-three recorded cases. One attack of the disease predisposed to others.

Rheumatism is rare under the age of two years, but well-authenticated cases are on record in infants of six months. In most cases of the disease in children, the symptoms are much less severe than in adults. It usually begins in the lower extremities, and then extends upward; but the reverse of this is true in scarlatinal rheumatism, where the trouble begins in the upper extremities, as a rule.

But however mild the attack may be, rheumatism is a dangerous malady in children, on account of the liability to heart trouble which characterizes it. Endocarditis may begin as early as the second or third day, and in one instance he has observed it on the very first day of the attack. If the child escapes this complication for the first week, and proper remedies are administered, the chances are that endocarditis will not occur at all. Dr. Smith said that in 43 out of his 73 cases there was a mitral regurgitant murmur. The endocarditis was usually superficial. One case of embolism has been noted by him as a result of endocarditis. Pericarditis is much more rare than endocarditis, although there is little doubt that it is more frequently overlooked than the latter. Pleurisy, in his experience, is not a very frequent complication.

As to the association of chorea and rheumatism, out of 68 cases of chorea which he had noted, 26 of the patients had had rheumatism one or more times. Usually the rheumatism preceded, but occasionally the chorea set in as early as the latter. Of the other 42 cases of chorea, in 11 one or both parents, and in one other a sister, had had rheumatism. Therefore, in about 50 per cent. of his cases rheumatism was noted either in the patients themselves or in near relatives. Dr. Smith said that he should like to emphasize what had been said about the importance of making an early diagnosis, and placing the patient as soon as possible on the use of proper remedies. By attention to this point, many lives could, no doubt, be saved.

The best remedy is the salicylate of sodium, or of potassium, if the latter is preferred. Dr. Smith was inclined to believe that, as a rule, this remedy is commenced too late, and given in too small doses; the reason for the former being that the diagnosis is not made early enough. If given sufficiently early and in large enough doses, he thought that it would, in a large number of instances, prevent cardiac complications. He recommended that it should be commenced on the first day, if possible, and given in doses of ten or fifteen grains to a child four or five years old. Given in this way, he has come to regard it as a specific. In cases, however, in which the disease had already continued for two weeks, he has been disappointed in its efficiency.

As to the origin of the lactic acid, provided this is the essential cause of rheumatism, he thought that Dr. Chapin was probably mistaken in attributing its formation to fermentation in the processes of digestion, for

the reason that in infants, where lactic acid fermentation is by far the most common, rheumatism is much more rare than in older children, who are much less subject to lactic acid fermentation.

Dr. Malcolm McLean said that he was inclined to believe, that if the minute history could always be ascertained, it would be found that heredity was a factor in every case of rheumatism; the affection constituting the prevailing tendency of the patient's family. Such had been his own experience in quite a number of instances. He had also, like other observers, noted the much greater frequency of the disease in girls than in boys, no less than four out of five of his cases being in girls. This was in part due, he thought, to the style of clothing worn. As to so-called "growing pains," he believed that they are invariably due to rheumatism, and that physicians should on this account not underrate their importance. In some cases of chorea he had observed a condition of accelerated cardiac action remaining, sometimes for years, after the choreic trouble had disappeared, although no cardiac disease whatever could be detected by the most careful examination. This seemed to show an undoubted rheumatic element.

Dr. L. Emmett Holt remarked that typical rheumatism is very rare in children; but if pains be taken to discover it, it will be found that rheumatic disease is nevertheless very frequent in this class of subjects. In these indefinite cases it is necessary to seek out the attendant conditions, and to inquire into the matter of heredity. As to tonsillitis, there is a marked tendency among the later writers to trace a strong connection between quinsy and rheumatism. As to ordinary follicular tonsillitis, however, he doubted whether there is any special connection between the two, as in two hundred cases of the latter he had not been able to find any apparent association with rheumatism.

Dr. Kitch said that he had hoped that in this discussion something would have been said of the connection between rheumatism and the choreic joint affections of children. All the authorities on orthopædic surgery which he had been able to consult, had extremely little to say on this point; but in his own experience he had seen quite a number of cases of diseases of the joints which he believed to have been of rheumatic origin. It is often a matter of some difficulty, however, to make a satisfactory diagnosis between a rheumatic and a tubercular or strumous source of trouble in such cases. Still, he had frequently met with cases of Pott's disease and hip disease, in which there was rheumatism in the parents, and quite recently he had seen one such case in which the child itself was rheumatic and had a direct mitral murmur. He also referred to tarsalgia in children as a rheumatic affection.

The President said that heart disease is very frequent in children, and this is due to two causes, first, sepsis, which is very rare; and, second, rheumatism, which is the cause in the vast majority of instances. The cases of congenital cardiac disease are those of the right side of the heart, and these usually terminate fatally at so early a period of life that it is not necessary to take them into consideration.

As a rule, the younger the child, the less prominent the joint affection in attacks of rheumatism. As to the so-called "growing pains," he thought a word of caution necessary. Dr. McLean had remarked that the diagnosis of growing pains ought never to be made, and that when the parents mention that a child is suffering from such pains, it should always be treated by the physician for rheumatism. It is, no doubt, true that such pains are very frequently of rheumatic origin; but they might be due to other causes also. In the first place, the affection may be a neurosis, and there is sometimes an œdematous swelling about, but not in, the joint. Secondly, there is such a thing as *real* growing pains. When the epiphysis and cartilages are developing rapidly, hyperæmia always results, and this may be so marked as to cause the pain complained of. By this it was to be understood that rachitic epiphysitis was not meant. Sometimes this development in the epiphyses went on very rapidly during and after an attack of such diseases as scarlatina and typhoid fever.

Dr. J. Lewis Smith said, in reference to the acceleration of the heart's action without appreciable cardiac lesion, mentioned by Dr. McLean, that he called to mind a case of this kind, in which the autopsy showed the presence of well-marked endocarditis. Yet during life there had been no murmur whatever. He had presented the specimen to the Pathological Society, and the examination of the heart was made with great care by Prof. Francis Delafield. Endocarditis was not necessarily accompanied by such lesions of the valves as to give rise to murmurs.

Dr. Chapin said that he wished those present would endeavor to assist him in collecting cases in which there had been evident valvular trouble, which afterward entirely disappeared.

The President remarked that there are a certain number of cases in which a cardiac murmur disappears after lasting perhaps only a day or two, or perhaps for a longer period. These are probably instances of simply a rheumatic murmur, and not really of endocarditis. What we take to be endocarditis is in fact rheumatism of the heart muscle. But in other cases there is true endocarditis attended with a murmur, which after a longer or shorter period entirely, or almost entirely, disappears. A heart in which this takes place is not strictly a normal heart, being larger than it should be, but compensation is so ample that no murmur results. This change usually takes place a little after the age of puberty, and it is more likely to occur in males than in females. Dr. Jacobi said he knew of several cases of this kind in the city, where the patients were now grown men, and entirely free from any appreciable cardiac trouble. Dr. Smith had called attention to the fact that endocarditis might occur without valvular disease. This is no doubt true; but in the larger number of cases of endocarditis without a murmur, the disease is probably of an ulcerative character. In the ulcerative form of endocarditis the valves are affected, but the lesion is not on top of the valves, but at their insertion.

The Corresponding Secretary announced the

DEATH OF PROF. ALFRED C. POST,

ex-President of the Academy, and on motion of Dr. John C. Peters, the President was requested to appoint a committee to prepare a suitable memorial of the life and services of the deceased surgeon.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, February 1, 1886.

The President, Samuel Nickles, M.D., in the Chair.

Dr. Thaddeus A. Reamy read a paper on

oöphorectomy for the relief of hystero-epilepsy.

(See page 230.)

Dr. S. P. Conner remarked that although he had never done the operation referred to, he could heartily congratulate Dr. Reamy on the success of his operation, and more especially on the success of his remedy for vomiting. As the paper was being read, however, he had been forced to question whether there was in the case reported a true peritonitis, for the symptoms could all be explained by referring them to reflected irritation. But whether there was or was not inflammation of the peritoneum, it is gratifying to know that we have a remedy which will act so kindly and so promptly in these cases of persistent vomiting. The remedy administered in the manner reported may exert a primary effect on the hypogastric plexus, a secondary effect on the solar plexus, and later on the medulla, its action being increased by its being thrown into the rectum. It was stated in the paper that the patient had taken chloral before, both by the mouth and by the rectum, in twenty grain doses. This would indicate in a measure her tolerance of chloral. The experience of the speaker would indicate that chloral is an exceedingly treacherous remedy, affecting some individuals more strongly in the dose of five grains, than it does others in four times that amount, so that the susceptibility of each individual must be ascertained before a large dose is given. It is the remedy which, above all others, controls spasmodic affections, as is shown by its action in tetanus. The reports of its action, whether it be taken by the mouth or by the rectum, speak very favorably for its use in such affections. It must not be forgotten, however, that chloral sometimes produces very disastrous effects by its toxic action upon the medulla. The dose in this case was small in comparison to the doses that have been administered. The speaker had been particularly struck, in reviewing this subject, by a case reported by Beck, of the Baden army, in which the remedy had been given in the quantity of 420 grains in three and a half hours; the patient slept thirty hours, and recovered. Two hundred grains a day have not unfrequently been administered for days together. The speaker's own experience is not without interest in this connection. He had, when the remedy was first introduced, taken eighty grains of it within forty minutes, for severe headache. He slept ten hours without waking, and then awoke with the most terrific headache he had ever experienced.

In all irritations in connection with either the intestinal canal or bladder, in regions supplied by either the hypogastric or solar plexus, chloral has been found to act very kindly indeed. It had just occurred to the speaker that chloral might be of service in allaying the early vomiting attending strangulations of the intestine, whether internal or external. The only difficulty would be that it tends to mask the very symptoms most indicative of danger, without relieving the difficulty.

Dr. James T. Whittaker remarked that the case which had been reported this evening, has its surgical, its physiological, and its medical aspect. The essayist requests us to consider it only from the standpoints of physiology and medicine. It is a curious thing that facts so common as vomiting and even sleep have never yet received a satisfactory explanation. For his own part, the speaker had become dissatisfied with the explanations of the nature of the process concerned in vomiting. First, it is stated that it is caused by irritation of the pneumogastric; then we meet the statement that it will occur after section of that nerve. Again we read that vomiting is occasioned by the contraction of the muscular fibres in the wall of the stomach; then that it occurs when the stomach has been entirely removed and a bladder substituted. The present prevailing view calls for a special centre in the medulla.

The most varied remedies have been used for the control of vomiting: bismuth, effervescents, creasote, external irritants, etc., but in bad cases the time comes when we must all resort to anodynes. The most effective of the anodynes is morphia;; administered subcutaneously it is usually successful in controlling vomiting. The speaker would not place the same confidence in chloral for the control of vomiting as in morphia. In obstruction or hernia he would not trust it as he would morphia, because in these affections the vomiting has the character of a regurgitation. The better way of relieving this kind of vomiting is, in the judgment of the speaker, to remove the contents of the stomach. Dr. Conner stated a truth when he remarked that chloral is the most powerful agent in controlling spasmodic affections. Any one who has seen its action in relieving the vomiting and cramps of cholera, must agree with this statement. In the last epidemic of that disease which visited this city, he had seen nothing which was equally efficacious. He did not place the same faith as the essayist in the rectal use of the remedy, however; and his scepticism was based on its failure in so many instances to produce the desired effect. A case had come under his observation with the last speaker, where the patient actually died of vomiting, and chloral used in every way had no beneficial effect whatever. He was somewhat surprised by the statement of a previous speaker, that so small a quantity of chloral has produced fatal effects. In the last article he had seen on the subject, by Liebreich, it was stated that a smaller dose than sixty grains had never produced a fatal result, unless impure chloral had been used. It would be interesting to know in these cases what preparation of the remedy had been employed.

Dr. Conner stated that in the vomiting of strangulated hernia, the early vomiting to which he had referred was not due to overfilling of the stomach and bowel, but to reflex irritation, though the latter vomiting is of the retained contents of the canal above the seat of obstruction. Chloral then may, by diminishing or arresting the reflex action, be of great benefit; the danger in using it lies in the arrest of symptoms without in any degree relieving the conditions upon which they depend.

Dr. Samuel Nickles thought there could be no doubt that at the present date the process of vomiting is perfectly understood, and what particular nerve centres control the various muscles which are engaged in a

simultaneous action during the vomiting process. The essayist quoted the remarks of Brunton on this subject, and that author has given a full and clear account of the present state of our knowledge. It has been stated that vomiting is produced by tartar emetic even when the vagus is cut. We can produce vomiting by simply titillating the throat, and by applying certain emetics to various parts of the body. When tartar emetic is injected into the veins or under the skin, a part of it may be eliminated by the mucous membrane of the œsophagus and intestines, and it will, therefore, produce vomiting by its local action, even after the stomach has been removed. It was formerly supposed that tartar emetic acts by exciting the vomiting centre in the medulla oblongata; but when it produces vomiting, a portion of the drug can always be found in the vomited matter. When injected locally it passes through the blood to the stomach to produce its local effect. In a case like that related by the essayist, the vomiting was not produced by an irritation of the stomach, and in the opinion of the speaker it was difficult to see why the remedy administered would not have acted just as well if given by the stomach. It has been stated that when the remedy is injected into the rectum, as in this case, it has a more direct action on the nerves of the abdomen. In the opinion of the speaker, however, chloral injected into the rectum must enter the circulation, pass up through the portal vein, through the liver, through the hepatic vein, get into the right side of the heart and finally into the general circulation before it can reach the nerves of the abdomen, and, in reality, pass through the same course as if taken by the stomach. Unless it is shown experimentally that it acts more directly, he would doubt such a view.

Chloral cannot be well administered hypodermically, because concentrated solutions combine with the tissues and are retained by them. Solutions containing more than ten per cent. are likely to produce local disturbances, and stronger solutions are apt to produce abscess. Diluted solutions can be used, but the dose is so large that several syringefuls must be injected.

Chloral is an efficient agent to arrest certain spasms. We can, for instance, very readily prevent the spasms of strychnia by it. In rabbits, if chloral be previously injected, an ordinary lethal dose of strychnia will not produce tetanic spasms. But chloral will not allay all spasms. It will not allay the spasms of epilepsy; it is largely used in cases of chorea to produce sleep, and during sleep, of course, the spasms cease; in this it is effectual. There can be no doubt, too, that in certain forms of vomiting it would be an exceedingly useful agent in doses not exceeding twenty grains; but the speaker believed the bromide of potassium a better remedy in the vomiting of pregnancy, and an agent which may be given in large doses, in as much as half a drachm or one drachm doses if necessary, without producing any evil effects.

Death has resulted from thirty grains of chloral, and a case was reported in which ten grains were believed to have produced death. The speaker has seen very dangerous symptoms produced by thirty-five grains. The rule laid down in some of the text-books at present is that twenty grains should be the maximum dose at first. This may be repeated in an hour, and it is generally stated that sixty grains may be given in succession. Obstetricians, he believed, place the dose that is required to produce rapid dilatation of the os at fifteen grains, to be repeated twice if necessary.

While chloral is a useful remedy in tetanus, it is still doubtful whether it diminishes reflex action as promptly as does the bromide of potassium. Huseman, among others, is of opinion that its action is chiefly on the brain. It may act on the cord also, but it certainly produces depression of the brain cells. A person asleep from a dose of twenty or thirty grains of chloral does not breathe more slowly than a man in a natural sleep. The brain cells are depressed while the other organs are not notably affected.

The present treatment of tetanus consists in chloral at night only in ordinary hypnotic doses and the bromide of potassium during the day. In poisoning by strychnia, chloral is a very useful remedy, but it is to be given at first only in hypnotic doses.

Dr. Whittaker inquired whether Dr. Nickles had read of more than one case that had succumbed to a dose of less than thirty grains of chloral. Some of us, he said, are accustomed to give thirty grains regularly as a dose. Bouchut does not hesitate to give thirty grains to a child, or even to an infant. Death has occurred from very small doses of morphia, and yet that has not disabused our minds of the idea that a quarter grain is the proper dose of that drug. One or two cases of death from a very small dose of chloral are not sufficient to establish a rule, but if such cases become of frequent occurrence, twenty grains would appear to be the maximum dose. The speaker had always advised the use of chloral only at night; and he had never hesitated to raise his voice against preparations containing both chloral and the bromides.

Dr. Nickles replied that he had not reviewed the statistics for some time, and could recall only one case in which ten grains were followed by death. In his own case thirty-five grains had not produced death, but alarming symptoms took place. He added also that children bear chloral well. Infants may take one or two grains as a rule. He would hesitate to give larger doses to a very young child. He thought that twenty grains should be the maximum initial dose for an adult; he would, however, repeat it in the course of half an hour if necessary, and give a third dose in the course of another hour if the second did not secure the desired effect. If a seemingly healthy patient dies after taking such a dose of chloral, he would not believe that death was the effect of the chloral. In the same way it is an error to attribute the death of a person who has taken an ordinary hypodermic dose of morphia to the remedy, unless a carefully conducted post-mortem fails to reveal any other cause of death.

The speaker added that chloral is not now considered an anodyne, but only a hypnotic. It does not relieve pain as such; however, it may have some action on the sensory nerves when applied locally.

Dr. R. B. Davy agreed with the last speaker in the statement that in most of the cases in which death follows the administration of chloral in ordinary doses the death is the result of some other cause. These deaths, he said, usually occur in individuals who are broken down in constitution, as in drunkards, in whom the action of any remedy is likely to be much modified. With regard to twenty grains as the maximum dose, the speaker had

seen cases in which that dose every two hours would not produce sleep. He then reported a case in which he had prescribed twenty grains of chloral every two hours. At night he was called, and found his patient in a deep sopor, from which she could not be aroused. Suspecting that the condition was not wholly due to the remedy he had prescribed, he ordered an enema, and in a short time after the patient revived from the condition in which he had found her. He also reported a case of convulsions from scarlet fever in which after other remedies had failed he had quieted the spasms by the administration of chloral.

Dr. Reamy, in closing the discussion, said that he had in reporting the case expressed the same doubt entertained by the first speaker, as to whether there was really acute peritonitis present. Of this he had no doubt when the chloral was administered. His doubts had arisen from the promptness and extent of relief obtained. Not only was vomiting relieved, but pain also, followed by sleep, and there was reduction of temperature.

However, he had usually found that when after laparotomy or other surgical operations upon the abdominal or pelvic organs, there is a rise of temperature, and more especially acceleration of pulse, with pain, tympanites, and vomiting, peritonitis is present. He considered under such circumstances, the vomiting of the so-called spinach-colored fluid as almost conclusive. He regarded the elevation of temperature as much less significant than acceleration of pulse. He had seen more than one fatal case of peritonitis where the temperature had at no time been above 101°. In this case the pulse had not been reduced after the chloral was administered, but this was not surprising, as he had in other cases verified the accepted opinion that chloral does not reduce but accelerates the pulse.

The next speaker had probably misunderstood him. He had not recommended chloral as a universal remedy for vomiting, he had not arrayed it against morphine, or placed it above this agent; he had only recommended it in the vomiting of pregnancy, and had inferred from its happy action in the case under consideration that it might prove efficacious in other cases of vomiting dependent upon peritonitis.

The speaker said that he had not the same confidence in the supreme action of morphine in controlling vomiting, as his friend Dr. Whittaker seemed to have. It is well known that in certain subjects vomiting invariably follows upon the administration of morphine, even though it be given hypodermically.

After abdominal surgery, when he has administered morphine for relief of pain and vomiting occurs, he is always, at first, at a loss to know whether it is due to the morphia or to peritonitis, so common is it for morphia to cause vomiting.

With regard to the action of chloral and the method of administration, in reply to the statement of the President that the remedy would have acted as well if it had been given by the mouth instead of by the rectum, the speaker called attention to the fact that the patient vomited everything taken, even a spoonful of water; therefore, the remedy could not have been retained. Moreover, it had been his experience that in the vomiting of pregnancy the remedy acts much more efficiently when administered per rectum.

The speaker had already called attention to the promptness with which chloral is absorbed by the rectum—osmosis commences at once. He would, of course, not pretend that its physiological effects are secured until it has reached the medulla, but he has repeatedly observed, clinically, that so-called after-pains are relieved more promptly and permanently by thirty grains of chloral per rectum, than by the same dose per os; indeed, the relief is more marked under such circumstances than that obtained from one-fourth of a grain of morphia *per os*. He regarded these observations as important.

It is denied that chloral has anodyne properties; in this view he could not fully concur, notwithstanding the highest authority. He supposed it might be considered that opium relieves pain and sleep follows, while chloral secures sleep and relief of pain follows.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, January 26, 1886.

Dr. H. C. Wood reported

TWO CASES OF SYPHILITIC DISEASE, THE LESION IN ONE INVOLVING THE ASCENDING FRONTAL CONVOLUTION; IN THE OTHER, THE CERVICAL SPINAL CORD.

The first of these cases is of special interest, because so far as the motor symptoms are concerned the situation of the lesion closely agrees with the modern doctrine of cerebral localization, whilst no lesion was found to account for the loss of sensibility. The only explanation that could be given of this is that disease had existed in the membrane over the angular gyrus, and had been removed under the influence of the mercury, there being no record as to the condition of sensation just previous to death. This explanation seems, however, rather lame, because more distinct traces of such lesion would naturally be expected. The cases are also of interest as illustrating a danger which always overhangs a person suffering from syphilitic epilepsy—namely, possible arrest of respiration during the convulsion, and consequent death.

Case I.—R. B., male, aged fifty, entered the Nervous Ward of the Philadelphia Hospital, January 2, 1885. The following extract is taken from the case-books of the institution: "R. B. says that his health has always been good, and whilst acknowledging that he had chancres twenty-five years ago, denies all other forms of venereal disease. Eight years ago he fell downstairs and struck his forehead just above his left eyebrow; he was picked up unconscious, and remained in that condition for four hours. One week after his fall he returned to work, but was troubled with a feeling of lightness in his head and vertigo. About two weeks after this he suddenly felt a peculiar pricking sensation in his right foot, which extended rapidly up the leg to the thigh, and finally to the right arm and thence to the head, and was immediately followed by unconsciousness. He has never bitten his tongue in this or any subsequent attacks. The convulsion was followed by a period of stupor or sleep. About two weeks after there was a second epileptic attack without any aura or other warning. His arm, which had continued in a numb condition ever since his fall, for a time grew steadily worse.

For one year its condition then remained unchanged. He still had epileptic attacks at intervals, varying from a few weeks to a few months. Eighteen months ago he had an apoplectic attack, in which the unconsciousness lasted for several hours. There was no ensuing paralysis; nor did his health seem to be the worse for the sickness. He states that he now has attacks of epilepsy at about monthly intervals. These attacks are preceded by a peculiar twisting of the fingers of the affected hand, and followed by stupor or somnolence, lasting for about twelve hours.

Present Condition: There is partial motor paralysis of the right hand and arm. With the left hand he moves the hand of the dynamometer to 95; with the right only to 30. The æsthesiometer points separated to their widest, are felt on the right hand and arm as only one; on the left arm the points are separated on the ulnar and radial side at two and a half centimetres apart; on the palmar surface at four centimetres. He has not as good use of his left leg as formerly, although there is no complete paralysis of any of its muscles. Patella tendon reflexes normal. Ordered potass. iodide in increasing doses.

Treatment: January 6, 1885. According to statement of nurse, in his fits the patient works altogether with right side. Left pupil slightly smaller than right. Perceptible weakness in right side of face. Dynamometer: right hand, 46, left hand 87. In neither thigh is there any difference in sensitiveness. He complains a good deal of frontal headache. Edges of optic disks sharply cut, and optic disk itself abnormally white, and believed to be atrophic. Ordered to be ptyalized.

The patient was ptyalized, and afterward was given the iodide very freely; but notwithstanding there was distinct improvement in regard to headache and general condition, the fits continued, although at longer intervals, and on the ninth of May there was prolonged unconsciousness after a fit, ending in death.

Autopsy: Contents of thorax normal, except as to congestion; liver is large and congested, indurated, capsule thickened. In the tissue between the right and left lobes, anteriorly and near the lower edge, is a distinct gummatous tumour of the size of a hickory-nut. The new growth has developed from the capsule and grown inward. Upon the upper border of the same fissure and posteriorly is a scar, evidently a healed gumma. Kidneys congested, but otherwise normal. Rest of organs normal.

Brain: When the skull cap was removed some ounces of black blood ran out. Membranes much congested everywhere. Dura mater normal, except in being abnormally adherent to the edges of the great fissure.

Left hemisphere: Arachnoid and pia mater abnormally thick, especially superiorly, and somewhat opaque. Vessels somewhat congested. On external inspection of the bared convolutions nothing abnormal is observed, except about the middle of the ascending frontal convolution, where at a spot one-half inch in diameter the membranes were fused with the brain surface, and could not be separated. The tumor is one-third of an inch in thickness, and in tearing it out a definite cavity was left. No other lesion discoverable in any part of that hemisphere. Remainder of brain normal in general structure.

Cause of death: Œdema of the brain from cerebral syphilis.

Case II.—Cadamoni, aged about twenty-two, entered the wards of the Philadelphia Hospital, June 1, 1885. As he was an Italian of very low order of intelligence, no detailed history of his case could be obtained. He stated, however, that he had been well and strong until three months before, when he had been hurt in the upper part of the back, and had not been able to work since. One month before entrance he had rapidly lost power in both arms.

His condition at the time of entrance to the hospital was as follows: He is unable to stand, and entirely confined to bed, but can make feeble and slow movements of the thighs, legs, and feet; all muscles seeming to be about equally implicated. The whole of the left arm is paralyzed, except the thumb, which can be moved slightly. In the right arm the deltoid and the flexors of the fingers are much wasted. There is no paralysis of the face; patient cannot turn in bed, but has not lost control of the bladder and of the rectum; sensation is not much affected; pain is complained of in the back and side of the neck and in the limbs, especially in the arms; marked pain in the sternal region on coughing. Pressure of the lower cervical vertebræ causes severe pain, and forcible jarring of the head also produces pain in the lower cervical spine; cervical vertebræ not distinctly prominent; patella reflex somewhat exaggerated; temperature normal; bowels persistently very costive.

The patient was put upon a water bed; iodide of potassium given in rapidly increasing doses, until a hundred and eighty grains a day were taken, but the symptoms gradually increased, paralysis became more marked in the lower extremities, and complete in the arms; power over the bladder and rectum was lost, and the patient died June 18th, seventeen days after his entrance into the hospital.

The autopsy was confined to the vertebral tract. In the lower cervical region, extending into upper dorsal, was a thickened mass, several inches long, not at all separable from the membranes of the cord. The outer portion of this is formed of a uniform structureless base, filled with numerous long, narrow, curved cells, evidently derived from connective tissue. Within, this mass is chiefly composed of innumerable small, round, closely packed cells; sometimes arranged in irregular, diffused masses, but in many cases collected into globular masses, which are only in rare instances distinctly separated from surrounding tissue. A few of these masses were yellow, the cells evidently undergoing fatty degeneration, and not taking the stain at all.

Cord underneath the tumor chiefly composed of a structureless, minutely granular, neuroglia matter, with numerous roundish neuroglia cells. No nerve tubule discoverable in section. Gray matter affected nearly as much as white; ganglionic cells still present, although most of them much altered.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, February 3, 1886.

THE PRESIDENT, S. WEIR MITCHELL, M.D., IN THE CHAIR.

DR. THOS. J. MAYS, read a paper

ON THE NUTRITIVE VALUE OF SOME BEEF EXTRACTS: AN EXPERIMENTAL INQUIRY.

A study of the extensive literature of the beef extracts shows the inconstant and indefinite opinions which have

been held concerning their action, and also illustrates the fluctuations of thought which the medical profession is liable to undergo. Liebig, who was one of the first to invest this question with scientific interest, held no less than three different theories regarding their action, during the last twenty years of his life. Since his death, medical opinion has by almost universal consent reverted to the second idea entertained by him, viz., that the beef extracts are of very little or no value as foods. It is true that this has been questioned by some whose clinical observations have led them to different conclusions, yet the works on physiology, therapeutics, or pharmacology, assign the beef extracts among the non-nutritious alimentary agents. Probably the most positive expression of this feeling among those who are considered modern authority on such subjects is that of Dr. Fothergill in his *Handbook of Treatment, or Principles of Therapeutics*, who, on page 537, says that, "as a food, beef-tea ranks low. It contains meat-salts, a small quantity of albumen, and a little gelatine, together with some advanced nitrogenized matters useless in histogenesis. But there is little in it to repair tissues, and less in it to sustain life, so far as our knowledge yet extends. There is little real force-bearing material in the protean compounds of beef-tea. For the starving fever patient, to give him beef-tea alone is almost to give him a stone when he asks for bread. It makes him feel better for the time being, but that is due to its stimulant properties."

There can be no doubt that the cause of the prevailing scepticism concerning the nutritive value of beef extracts is largely due to the experiments which were made by feeding animals exclusively on these preparations, with the result that all of them died within a short period of time. Indeed, Kemmerich affirms that they died more quickly than those which were left to starve from hunger. This has the semblance of proof that beef extracts are not capable of supporting life. Sober reflection teaches, however, that no animal can subsist continuously on any single food, and that such a test would unceremoniously refute the food value of almost any substance, no matter how nutritive it might be. But, beset with difficulties as this investigation evidently is, the question is not whether these substances are capable of sustaining life alone, but whether it can be shown that they contain any nutritive value at all, and if so how much. Here everything depends on the method which is employed to determine this question. It is imperative that this should be definite and exact. It must be able to show the functional state and condition of the organism, before, during, and after the addition of these substances; or, in other words, it must demonstrate whether the organism is, or is not capable of performing work when these substances are added to it.

To meet all these desiderata, Dr. Mays selected the isolated frog's heart.

In summing up the literature upon the action of the frog's heart in its relation to this subject, we find: That the heart in performing work consumes oxygen; that after it is once completely exhausted, it cannot resume its pulsations unless food energy is supplied to it from the outside; that blood, serum, milk, albumen, and gelatine are capable of acting as foods and of restoring its power of contraction, but no other substances have, heretofore, been shown to possess this property; that the pulse elevations and the amount of work which the heart is able to do, depend in a great measure on the degree of concentration of the food. These data, moreover, demonstrate very fully that the heart does not exercise the function of a purely circulatory organ in these experiments, but that it is an organic medium possessed of the power of assimilation, of transformation of energy, of contraction, and of respiration.

The apparatus which was employed in testing the food value of the beef extracts was the following: The heart, by means of a double canula, on which it is securely but gently tied, is attached to a Kronecker-Bowditch heart apparatus, and then through a mercury manometer, and an appropriate glass needle, it records its pulsations upon a revolving cylinder. The heart is fed or transfused through the double canula from two Mariotte's bottles, with any desirable fluid; and in order to keep it pulsating regularly, minimum shocks of one Daniell's cell through a DuBois sliding induction coil, were employed about every four seconds. Before testing the beef extracts, the heart was in every instance well washed out with a 0.6 per cent. saline solution, after which it was allowed to work with the same until all its stored-up material was exhausted and its pulsations reduced to zero. Then a weak solution of the inorganic elements of the beef extracts, chiefly containing phosphate and carbonate of potash, and chloride of sodium, was carefully tested on the heart to find out whether it had any power to induce cardiac contractions, but it failed in every instance. The same was also found to be true of a solution of urea whenever it was tried. After this preliminary work, a number of different dilutions of a beef extract previously prepared with a 0.6 per cent. saline solution (usually in the following proportions—1 : 100; 1 : 250; 1 : 500; 1 : 666; 1 : 1000; 1 : 2000; 1 : 4000) were alternately introduced into the heart and their effects noted. The stronger dilutions, like 1 : 100 to 1 : 500, had no influence whatever in restoring cardiac contractions; but in every specimen which was examined, the dilutions from 1 : 666 to 1 : 2000 had the power of reviving and of maintaining the beats of the heart.

Judging from the data obtained by experiments, the following deductions can be made concerning the influence of the beef extracts on the frog's heart:

1. That they are absorbed and assimilated.

2. That they contain material which has the power of inducing muscular contraction—a power which has heretofore only been shown experimentally to exist in the higher animal albumens or proteids.

3. That, hence, whatever else they may be, they are nutrients in the full implication of that term.

After it was thus demonstrated that these beef preparations contained definite nutritive properties, it was deemed desirable to ascertain the value of each, and means to this end were instituted by comparing their effects with those of a two per cent. solution of dried bullock's blood alternately on the frog's heart in the following manner: In the first place the heart, after being washed out, was filled with the two per cent. blood solution and then allowed to beat until its pulsations were reduced to a minimum, or until the whole nutritive supply of the blood solution was consumed; after which it was washed out again and filled with a solution of the beef preparation to be tested, and allowed to beat with

it until its pulsations were again reduced to a minimum. A large number of comparative tests were made of each of the above named beef preparations in this way, and the following products were obtained, which indicate the mean percentage of the number of pulse beats given by each preparation, while that of blood is taken as 100. These figures are probably not absolutely true, but they give an approximate idea of the nutritive worth of these extracts when compared with that of a two[1] per cent. blood solution, which is capable of producing a normal cardiac contraction.

	Mean Percentage of Number of Pulse-beats.
Liebig's Extract of Beef	58
Johnston's Fluid Beef	59
Valentine's Meat Juice	60
Cibil's Extract of Beef	61
Sarco-peptones (Parke, Davis & Co.)	62
Beef Peptonoids (Reed & Carnrick)	74
Milk	100
Two per cent. solution of dried bullock's blood	100

From this table, it appears that all these preparations contain very nearly the same amount of nutritive material except the Beef Peptonoids, which contain from ten to fifteen per cent. more than the others. It must not be forgotten in this estimation that the Beef Peptonoids are not a pure beef extract like the rest, but a compound of the latter with milk and gluten. Therefore, in order to get at the true value of this preparation it is important to test each ingredient. Milk alone gives as goods results as the blood solution, as can be seen from the table, and there is no doubt that a portion of its valuable property is due to this agent.

The next question which arises in this investigation is as to which of the many organic bodies resident in the beef extracts this nutritive property is due, and principally owing to the difficulty of obtaining these organic extractives, this portion of the work remains incomplete, but Dr. Mays is making preparations to resume it at an early day. It can be safely stated, however, that the inorganic elements of the beef extracts contribute no share to this result, for the phosphate of potash solution contains all these, and in every instance where this was tested it failed to bring out the least cardiac reaction. Hence, these can be left out of consideration.

When finely divided beef muscle is exposed to the action of about four or five times its own weight of cold water for four or five hours and then well pressed out, it loses from sixteen to twenty-four per cent. of its original weight. In this watery solution is contained from two to fourteen per cent. of flesh albumen, while the remainder is made up of kreatin, kreatinin, sarkosin, sarkin, xanthin, carnin, inosit, fat, glycogen, and the inorganic elements; while in the residue there is left nothing but fibrous tissue, principally composed of muscular fibres and connective tisue, which is tasteless, rejected by animals, and entirely unfit for nutrition. Therefore, it is very probable that all the nutritive element of beef muscle resides in its organic extractives.

Now there cannot be the least doubt that the variable amount of albumen contained in the beef extracts furnishes some of the nutritive property displayed by them, but it is far from Dr. Mays's intention to claim that this is exclusively due to it. Indeed, he has found altogether unexpected indications during the investigation which may, on further examination, throw some more light on this question. One thing, however, remains steadfast throughout, and that is, if the albumen of flesh is not the sole nutritive element in these beef preparations, then some or all of the organic bodies which they contain must be nutritious, and can no longer be regarded as effete products of the animal body.

It is not necessary to point out, then, that the multitudinous composition of these extracts makes them a very valuable class of alimentary substances, both for nutritive and constructive purposes. Dr. Mays thinks it is quite evident now that these preparations are assimilated and utilized by the frog's heart without previously passing through a digestive process, and we have no reason for believing that this does not also obtain in the human organism; hence in conditions where the stomach has an intolerance of food, or where there is any hindrance to the introduction of the same through the primary passages, the object of feeding the patient can readily be secured by introducing a suitable preparation hypodermically. A number of years ago he treated several such patients with Valentine's Meat Juice, which, on account of its complete solution in the normal state, is probably preferable for this purpose. He injected from fifteen to twenty minims three times a day with good effects. He failed, however, to keep a record of these cases, but recollected that one was a case of persistent vomiting caused by a severe blow on the head, and that after each injection the patient expressed himself as being stronger and feeling as if he had eaten something. Not the least irritation was produced at the point of injection, and he thinks this field deserves further investigation.

[1] Two per cent. solution of dried bullock's blood gives as good cardiac contractions as fresh blood in proportion of 1 : 3.

NEWS ITEMS.

CANADA.

(From our Special Correspondent.)

Smallpox.—The epidemic has at last burned itself out. The week ending February 12th is the first week without a death from smallpox for about eight months. There are still some sixty cases in the Mount Royal Hospital, but all are doing well. The disease is breaking out in various parts of the province where they have neglected to isolate cases, and where there are no local health boards. The Central Health Board seems powerless to enforce the laws regarding health matters outside of Montreal.

Registration of Births.—A meeting of those interested in the new Public Health Bill was held a few days ago, Dr. R. Palmer Howard in the Chair. A committee was appointed to draw up a suitable bill, and especial directions were given them regarding the introduction of a clause concerning the registration of births. Heretofore the authorities of the Roman Catholic Church have always opposed any registration of births bill, but now they have consented to notify the Registrar of all the baptisms which are performed in their churches. The Protestant clergy have agreed to do the same. Special provision will have to be made for the unbaptized. Although this is rather a roundabout way of getting at

the births, still it is better than no registration. All the Roman Catholics have their children baptized within a week of birth, and there are very few exceptions to this rule. Among the Protestants baptism is not performed so early or so constantly, and a large number do not have their children baptized at all. This class, of course, will be compelled to register before a civil officer. When a record of the births is obtained, compulsory vaccination can easily be enforced.

CALCULUS OF TONSIL.—At a recent meeting of the Montreal Medico-Chirurgical Society, Dr. A. Lapthorn Smith exhibited a calculus of the right tonsil, which he had removed from a young man a few days before. The calculus was as large as a small walnut.

GERMAN GYNECOLOGICAL SOCIETY.—The first Congress of the German Gynecological Society will be held in Munich on the 17th, 18th, and 19th of June, 1886.

IT IS ESTIMATED that fully three-fourths of all the morphine manufactured is used for purposes of self-indulgence in the morphine habit.

TELEPHONES FOR THE SICK CHAMBER.—A London firm has devised a telephone by which persons suffering from contagious disorders may safely communicate with their friends.

MEDICATED OYSTERS.—The *Union Pharmaceutique* for 1885, p. 564, states that, in a perfectly serious advertisement, a French oyster dealer offers for sale both ferruginous oysters and tar oysters.

FERMENTED INFANT FOOD.—Dr. Polden, medical officer, Punjab Northern State Railway, has published an instance of a baby having been intoxicated by a fermented specimen of Mellin's food, purchased in the bazaar. Alcohol was found in the bottle by the Punjab Chemical Examiner.—*Indian Medical Gazette*, Dec. 1885.

MLLE. FRANCELLINE GAROCHE, a native of Nancy, France, has just entered her one hundred and fourth year. Her health is remarkably good, and the Société d'Encouragement has lately presented her with a gold medal. The journal in which this fact is recorded queries whether the medal was for the encouragement of celibacy or for the art of prolonging life.

THE FUTURE OF THE AMERICAN MEDICAL ASSOCIATION.—The meeting of the American Medical Association at St. Louis, Mo., in May next, will be a most important and we trust a successful one. Surely every physician who holds the honor of his profession dear should either go himself or interest himself in sending such representatives as are honorable and pure, free from all selfish motives for self-advancement and preferment and fully alive to the important issues that will be discussed at this meeting. The topic of the International Medical Congress will be the absorbing question for discussion, and will, we hope, be definitely settled, at least so far as it relates to the Association. Of late years this Association has appeared to degenerate into a body merely medico-political and it is time something should be done to elevate it to a proper standard and make it what the British Medical Association is to the profession in England, representative and national. Political intrigue and trickery have too long held sway in this Association and it is time the profession should see to it that it be no longer thus degraded, and be brought back to the place it occupied in its palmiest days. From year to year the meetings have become less and less important in a scientific point of view, and it is time every true physician should individually strive to change its downwward course. If some change is not soon effected, the Association will cease to exist and the profession will turn its attention to the separate special Associations which are all now in a flourishing condition. We hope, therefore, that all who can will make an effort to attend the coming meeting.—*Nashville Journal of Medicine and Surgery*, Feb. 1886.

The American Practitioner (Feb. 20), says: "In spite of all opinions to the contrary, we believe the Association will continue to be the representative body of the great mass of the profession in the United States. It was led astray at New Orleans. It will doubtless be led astray again and yet again, for designing, ambitious, selfish, and industrious plotters will gather at every meeting, and opportunities for their securing power will occasionally occur, and seizing these they will again plunge the Association into errors as unfortunate and as grievous as any of those committed in the past.

"With the lapse of years it will gain experience and grow both soberer and more conservative. It will have done with politics, ethics, and homœopathy. It will make the standing of the individual at home, and the character of his contributions to our common stock of knowledge its single test of loyalty. And, with its eyes cleared of the mists begat by personal feeling, and its heart purified of unworthy ambitions by defeat and mortification, it will come to see that true science knows neither sectional lines nor geographical distinctions, and taking counsel of its toilers rather than of its politicians, of its students rather than of its talkers, of its investigators rather than of its tricksters, it will make itself the accepted apostle of the gospel of work, and enter upon a new era of growth and prosperity."

NOTES AND QUERIES.

THE SENSE OF TASTE: A CORRECTION.

To the Editor of THE MEDICAL NEWS.

SIR: To-day's NEWS reports me as saying at the Neurological Society, in discussing the question of the sense of taste, that "it was considered proper to divide the chorda tympani for tinnitus aurium, and it was supposed to have been done." The very natural mistake of writing "chorda tympani" for *tensor tympani*, is here made. What I said was that, in dividing the tendon of the tensor tympani, the chorda tympani had been, I believed, sometimes divided also, and without perceptible injury to the sense of taste.

Whilst otologists would see that the above was a mistake, yet it might prove misleading to others, and I, therefore, beg a place in your columns for the correction.

SAMUEL SEXTON.

12 WEST 35TH STREET, NEW YORK,
February 20, 1886

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING FEBRUARY 20, 1886.

AUSTIN, H. W., *Surgeon*.—To proceed to Richmond, Vermont, on special duty, February 8, 1886.

URQUHART, F. M., *Passed Assistant Surgeon*.—To proceed to Richmond, Virginia, for temporary duty, February 16, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLVIII. SATURDAY, MARCH 6, 1886. NO. 10.

ORIGINAL ARTICLES.

LAPAROTOMY IN THE TREATMENT OF PENETRATING WOUNDS AND VISCERAL INJURIES OF THE ABDOMEN.

BY FREDERIC S. DENNIS, M.D.,

PROF. PRINCIPLES AND PRACTICE OF SURGERY IN THE BELLEVUE HOSPITAL MEDICAL COLLEGE; ATTENDING SURGEON TO BELLEVUE, ST. VINCENT, AND NINETY-NINTH STREET RECEPTION HOSPITALS, NEW YORK CITY.

(Concluded from page 230.)

THE *second indication* for laparotomy is in penetrating pistolshot wounds of the abdomen.

The profession in this country is indebted to Dr. W. T. Bull for the first practical application of a new principle in the treatment of penetrating pistolshot wounds. His remarkable case is familiar to all, and a reference to it is made in this connection in order to give to him the credit which he justly deserves.

Lately, in this country and in Europe, there have been several successful cases, which afford valuable evidence as to the propriety of this plan of treatment.

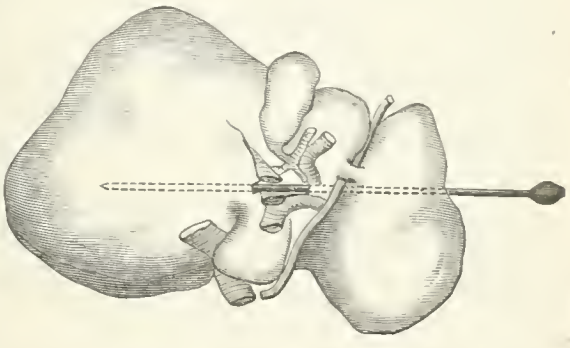
I have recently performed laparotomy in two cases of pistolshot wounds of the abdomen. The histories of these cases are as follows:

CASE XII.—M. R., æt. twenty-three, admitted to the Ninety-ninth Street Hospital, January, 1886. Patient was shot by a policeman with a 32 calibre ball. The wound was situated one inch below the sternum. A Nélaton's probe was introduced very carefully and under continuous irrigation of bichloride of mercury. Patient was in shock, and the fact that the bullet had entered the abdominal cavity led me to believe that the only chance of recovery was to open the peritoneal cavity. The median incision was made and the contents of the cavity carefully examined, wrapping each section of the intestine in towels wrung out with a warm solution of bichloride of mercury. During the examination a tremendous gush of blood appeared, and upon introducing my hand, thoroughly disinfected, at the time, into the bottom of the cavity. I felt a wound upon the under surface of the liver and my finger entered the transverse fissure. This was the source of the hemorrhage, and I mentioned this fact at the time to Dr. Messemer, the Coroner, and stated that the hemorrhage proceeded from the large veins in the transverse fissure. The hemorrhage filled the peritoneal cavity, which was cleansed of clots. There was no perforation of the intestine. The patient sank rapidly, and was almost pulseless. The wound was closed, the hemorrhage arrested by pressure as far as possible and stimulants administered.

The patient rallied a little, and finding his pulse very feeble I determined upon transfusion through the radial artery, which upon being completely divided did not bleed. The saline solution of Mikulicz was employed, which consisted of one litre of warm distilled water, in which were dissolved six grammes of chloride of sodium and one gramme of carbonate of sodium. Twelve ounces of this solution were transfused into the radial artery toward the heart, with marked effect. His pulse was, a few minutes after the transfusion, 130 per minute, and the patient seemed to rally. The canula was retained in the artery, and every four hours a fresh transfusion was made. His condition was greatly improved by the transfusion, and I began to feel that some hope might be indulged in as to his ultimate recovery, similar to another case of mine in which transfusion was employed in a secondary hemorrhage following a gunshot wound of the jaw, and in which recovery took place. In forty-eight hours after the operation, the patient died.

Autopsy made by Dr. Grauer in the presence of the coroners, January 5, 1886. Brain showed evidences of chronic meningitis as a result of alcoholism. The lungs were œdematous. The intestine *was not wounded*. The bullet entered the upper surface of the left lobe of the liver, and the track of the bullet as followed by a probe was downward and to the right. It traversed

FIG. 4.



Dotted line shows track of bullet, wounding vessels in transverse fissure; ball lodged in right lobe.

the transverse fissure of the liver and wounded the portal vein and other vessels in its passage through the substance of the liver. The bullet was found by Dr. Herold lodged in the lower part of the right lobe of the liver. There were evidences of the beginning of peritonitis and hepatitis, and many veins were also wounded in the liver tissue. There was some blood in the peritoneal cavity.

The remarks which I would offer in this case of pistolshot wound of the liver are these:

First. That while laparotomy did not save the patient, the operation did not hasten death; but prolonged life by temporarily arresting the hemorrhage.

Second. The diagnosis of the injury was made certain by the laparotomy, and while it was utterly impossible to expect a recovery under these conditions, the precise nature of the injury was diagnosticated, and the treatment was directed accordingly.

Third. The wound was a mortal one. There is no case which has ever recovered where the bullet passed through the centre of the liver, wounding small vessels in its substance, and large venous

trunks in the transverse fissure. Every surgeon knows how extremely fatal even peripheral injuries of the liver are, and how few have ever recovered. None have recovered with a central injury, which destroyed vessels in the interior of the organ and large veins in the fissure. It is impossible to believe that any injury involving the large vessels in the liver could be anything but an absolutely mortal wound.

Case XIII.—Mrs. K. B., æt. twenty-six, admitted to Ninety-ninth Street Hospital, Jan. 10, 1886, suffering from pistolshot wound of abdomen. The ball, which was a 32 calibre (Colt's revolver), entered half an inch to the left of the umbilicus. Upon admission the patient was not in profound shock. Temp. 100°, pulse 112, resp. 24, and suffering but little pain in abdomen; pain is increased during deep inspiration. There was loss of hepatic flatness over region of liver. The urine contained no blood and was clear and normal. I proceeded at once to perform a laparotomy and the peritoneal cavity was opened, and there was present fecal extravasation. Seven openings were found, which were carefully sutured by the Lembert stitch, and one perforating wound of the mesentery. The abdominal cavity was filled with venous blood, and the hemorrhage from the deep-seated venous trunks was appalling. The amount of hemorrhage became so large and alarming and entirely beyond control, that it was thought expedient not to continue, in view of the fact that the patient was almost pulseless at the wrist and was evidently dying. The intestine was replaced, and its weight seemed to control the hemorrhage for the time. The abdomen was closed, and the patient contrary to expectation rallied, and by stimulation at intervals of every few minutes lived for about forty-eight hours.

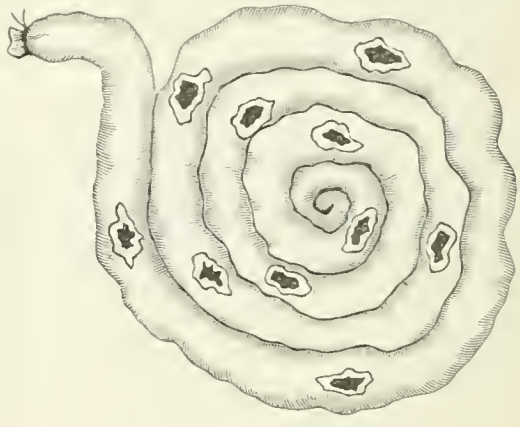
Autopsy. The seven openings were tightly closed by the sutures and no perforation in the gut had been overlooked. These wounds were water-tight. The bullet wounded the iliac veins and was found lodged in the psoas muscle in the vicinity of the promontory of the sacrum. The cavity of the abdomen was filled with blood.

Laparotomy in this case discovered the seven large perforations in the intestine. These were securely sutured, and no openings were overlooked. The operation also enabled the surgeon to remove the fecal matter from the peritoneal cavity. Thus far, the value of the operation is unquestioned; but the laparotomy did not render the arrest of the hemorrhage possible. Sponges and towels were simply buried in a pool of venous blood, the source of which could not be traced, owing to the repeated gushes of blood, which welled up from the pelvic cavity in a continuous and rapid stream. The bleeding veins could not be discovered, so rapid and great was the flow of blood from them. It seems to me, the great thing to be learned in laparotomy is a method of arresting the hemorrhage from such vessels as the vena cava, iliac veins, and the portal veins, and when this object is attained laparotomy will be attended with almost uniform and brilliant results.

It is fortunate that wounds of the large venous trunks seldom complicate the other visceral injuries. It was my misfortune to meet with two of these cases. The attention of the profession should be directed to this one point, and when a sure method is found which will control hemorrhage from the large veins, laparotomy, as an operation, will meet with unparalleled success. It would seem that some sort of mechanical pressure upon the vessels above near the diaphragm, and a tourniquet around each thigh, would save enough blood to prevent the patient from being exsanguinated while an attempt was made to secure the wounded veins down in the bottom of the peritoneal cavity. Until one has witnessed a hemorrhage such as I have described, he cannot appreciate the difficulties of the task, and in the future I shall endeavor to have in readiness some device to check temporarily such a hemorrhage, and some one whose entire attention is to be centred upon this one point during the operation. It is absolutely impossible to find a large venous trunk which is actually bleeding from the bottom of the peritoneal cavity and behind the peritoneum, unless some means is devised to arrest for a few seconds the torrents of blood which well up with such rapidity as to be in no way controlled by sponges or towels. Before the sponge can touch the spinal column to make pressure upon a large vein, the sponge is soaked with blood, and the hand is entirely buried out of sight in a pool of constantly rising blood, until the hemorrhage overflows the sides of the incision into the walls of the abdomen. Mechanical pressure, directly applied upon the vertebral column to arrest any arterial hemorrhage from the many branches of the aorta, and the application of a tourniquet to both thighs, may possibly control the bleeding sufficiently for a few moments until the surgeon can find the bleeding venous and arterial vessels.

Case XIV.—J. McA., admitted to Bellevue Hospital September 26, 1885, was accidentally shot. Upon his admission that same day at 2 P. M., patient was almost pulseless, cold and pale. Stimulants were employed,

Fig. 5.



The ileum, showing ten perforations.

and patient, at 5 P. M., had a fairly good pulse; skin moist; pain less. In the evening, pulse 130, temperature 102° F., and abdomen slightly tympanitic. At 10 P. M. patient's condition slightly improved. Sept. 27 patient's condition still better, and his condition remained so until late in the evening, when pulse became very feeble and rapid, tympanites increased, hepatic

flatness lost, and friction, fremitus, and murmur could be heard over liver. Patient sank rapidly during the evening, and expired about midnight.

Autopsy. Made by Dr. Pinkerton. Wound was situated one inch to the right of the external border of right rectus muscle, and opposite to a point on a level with the anterior superior spinous process. Peritoneal cavity filled with gas; the intestine was congested, agglutinated with lymph, and there was a quart of bloody serum in the cavity. No fecal extravasation was found. There were ten perforations, which were observed in three distinct groups, each group occupying about ten inches of intestine. The gut was contused and ecchymotic about the wounds, and the mesentery was injured at several points. The bullet had perforated the mesentery at one place only, and was found in the tissues between the rectum and the promontory of the sacrum, a little to the left of the median line.

The remarks that seem pertinent in reflecting upon this case of penetrating pistolshot wound of the abdomen, in which there were ten wounds of the intestine, are these:

First. Failure to perform a laparotomy deprived the patient of the only possible chance of recovery.

Second. If laparotomy had been performed, it is reasonable to believe that life might have been saved, because no fecal extravasation had occurred into the cavity, though it was filled with gas, and because no hemorrhage had occurred.

Third. Absence of positive symptoms of wound of intestine until shortly before death led to error as to the precise nature, extent, and character of the injury.

Fourth. Symptoms cannot be relied upon as an unerring guide in diagnosis. They may be almost entirely absent, and yet many perforations exist.

Fifth. The continual improvement in the patient up to within a few hours of death was misleading in this case.

Sixth. Since negative symptoms will not exclude injury of the viscera, the exploratory laparotomy in doubtful cases is justifiable on the ground that the operation is performed with little additional risk, and a failure to do so may result in death.

Seventh. The light thrown upon this subject, from a study of this particular case and of others, led me to a conviction of the right of the surgeon to interfere by laparotomy.

A case which I saw, and which was under the care of Dr. Charles Phelps, the history of which has been kindly prepared for me by Dr. Conway, the House Surgeon in Bellevue Hospital, illustrates the danger of refusing to operate.

CASE XV.—C. C., æt. twenty-five, admitted to Bellevue Hospital September 9, 1884. Patient was shot by her husband. After the shooting she was able to walk into an adjoining room. Upon admission patient was in great shock, and a bullet wound was discovered near the umbilicus. Stimulants and morphia were administered and the wound dressed antiseptically. The patient developed peritonitis, and died in about seventy-two hours.

Autopsy. The bullet had wounded the sigmoid flexure, and was flattened by striking the bone. The bullet then dropped into the pelvis. The cavity of the peritoneum contained gas and feces, and the membrane itself shown signs of acute peritonitis. There were only two small openings in the gut made by a bullet (22 calibre).

This case is another one which illustrates the value of laparotomy. In the absence of any hemorrhage the two perforations could have been easily discovered and closed, the peritoneal cavity sponged out, and the median incision sutured.

The following surgeons have published successful cases of penetrating pistolshot wounds where either a true laparotomy was performed or the original wound was enlarged, the perforations sutured and the cavity sponged:

Kocher,	(stomach)—recovery	1
Bull,	one case "	1
Ramsay,	" " "	1
Legouest,	two cases—recoveries	2
Hamilton,	one case—recovery	1
Smartt,	" " "	1
	Total	7

There are, of course, other cases, but these seven cases have been found in recent medical journals. The list does not include my two cases, because they were both fatal from hemorrhage. I have omitted to mention those cases in the above list where a laparotomy was performed and the cases terminated fatally, because so few are published and so great a number remain unpublished, and hence no data could be established which would in any way give a proper ratio between the recoveries and the deaths. All the recoveries are reported, few of the fatal cases are reported, and hence time must elapse before a proper estimate can be made. It will not be long before surgeons will be induced to contribute all their cases, and when we have before us all the successful and unsuccessful cases the mortality of the operation can be correctly estimated. It is sufficient for the present to ascertain whether any successful cases can be presented, because all of these patients are necessarily mortally wounded if penetration and perforation have taken place. As the technique of the operation is better understood, and the methods of controlling hemorrhage are studied, as the signs and symptoms of perforation are made more reliable guides, the death-rate after laparotomy will be greatly diminished. Dr. Otis states that it may be still considered doubtful if an incontestable instance of recovery was observed in penetrating gunshot wounds. With such a deplorable condition as this, certainly laparotomy, if it saves only one life in many, all of which are doomed to inevitable death, is a justifiable procedure.

The *third indication for laparotomy* is where there is a rupture of the intestine. This condition is the result of traumatism.

The rupture of the intestine due to pathological processes, as in strangulation or ulceration, will not be considered this evening.

Rupture of the intestine from traumatism can be best studied and investigated by an examination of these many pathological specimens, a most interesting set of which I have been able to collect. The indication can also be studied by a reference to the clinical history of some cases which I shall present. The great difficulty which naturally con-

fronts the surgeon is the absence of a positive diagnosis. So many other conditions simulate the symptoms of rupture of intestine that the surgeon must be exceedingly careful in the conclusions at which he arrives before performing a laparotomy.

Case XVI.—K. F., æt. eleven years. September 18, 1883. This specimen, which was taken from the

Fig. 6.

Rupture of duodenum near junction of jejunum.

abdominal cavity, illustrates the indication for laparotomy in cases of rupture of the intestine. The child was run over by a cart, the wheel of which passed over the anterior wall of the abdomen. Death occurred in twenty-four hours after accident.

Autopsy showed beginning fibrino-purulent exudation on peritoneum and about eighty ounces of yellowish-brown fluid in the peritoneal sac. No gas in the peritoneal sac. The retroperitoneal tissue was markedly emphysematous, especially behind the cæcum and the ascending colon, around the urinary bladder, and near the duodeno-jejunal junction. At the last mentioned place a soft yellowish material like feces was present in the areolar tissue. There was perforation of the middle portion of the duodenum. Other organs normal. The col-

Fig. 7.

Rupture of small intestine.

lapse, rapid respirations, and frequent pulse, vomiting, and, above all, emphysema, which was distinctly felt behind, denoted rupture of the intestine.

Laparotomy in this case might have saved the life of the patient. The diagnosis was made before death, which diagnosis was proved correct by the autopsy, and the failure to do an abdominal section on my part in this case illustrates the important lesson that an opportunity was lost to save a human life, where perhaps it might have been saved by abdominal section.

Case XVII.—J. O. R., æt. seventeen, admitted to Bellevue Hospital, Oct. 3, 1883. Patient was run over by a wagon, the wheels of which passed over his body. No external evidence of injury save two slight bruises. Patient is in considerable shock.

Autopsy. The peritoneal cavity, upon being opened, showed a rupture of the duodenum and the specimen was sent to the Wood Museum. There is no regular report of the autopsy; but a note attached to the specimen states that there was also injury to right kidney.

This is another case where an exploratory laparotomy might have saved life; but the operation under these conditions was not considered at the time a recognized one in surgery.

Case XVIII.—This specimen was taken from the body of a person who had been struck by a street car. There is a rupture of the serous or external and the mus-

Fig. 8.

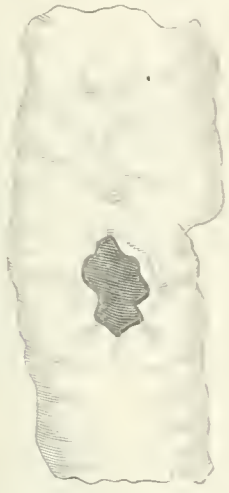
Rupture of serous and muscular coats.

cular or middle coats of the intestine; but the mucous coat is not ruptured. It protrudes through the rent in the two outer coats and forms a hernia of the mucous coat. This hernial protrusion is more or less constricted and forms a pouch or diverticulum. There was no external wound upon the abdominal wall. There was considerable retroperitoneal hemorrhage. Patient lived twenty-four hours after accident. There is no clinical history attached to the specimen except such as has been given.

Laparotomy might have saved this life, by arresting the hemorrhage, which seems to have been the cause of death. The hernia of the internal coat could have also been operated upon and cured.

Case XIX.—P. W., æt. forty-two, admitted to St. Vincent's, Nov. 1885. Patient, while engaged in a sparring match, was struck by his opponent's fist. Pa-

Fig. 9.



Rupture of small intestine by fist.

tient was brought to hospital in condition of moderate shock. He complained of severe fixed pain in abdomen. There was no external evidence of injury. The following day pain diminished in intensity; but the pulse was more rapid and smaller. In the evening pain was severe and fixed. Passed a restless night and died in collapse the next day.

Autopsy. Upon opening the abdomen there was extravasation of blood in the planes of muscles; but no ecchymosis apparent externally. Liver and intestine were studded with lymph and were very much congested. There was seen a rupture of the ileum about two feet from the ileo-cæcal valve. The rupture was large enough to admit the end of the finger. The edges of the wound were everted and a mass of fecal matter protruded through the opening.

Laparotomy in this case might have saved the life of the patient: at all events, the only chance for recovery was a laparotomy.

Case XX.—C. R., admitted to Ninety-ninth Street Hospital, December, 1883. Patient was struck by a pole of a truck. No external signs of injury. Patient was in shock upon admittance and his condition grew rapidly worse until his death, which occurred about forty-eight hours after injury.

Autopsy. A rupture of the ileum was found and peritonitis. There was no extravasation of fecal matter, but gas was contained in the peritoneal cavity.

In the absence of any hemorrhage and fecal extravasation, a laparotomy early performed might have saved the life of this patient; because he died from peritonitis caused by the rupture of the intestine.

Case XXI.—W. L., æt. twenty-eight, admitted to Bellevue Hospital, Jan. 16, 1882. Through the courtesy of Prof. Wright the following facts were obtained from the clinical register. Patient had simple fracture of tibia and fibula of both legs and severe pain in the right iliac region, and was in a state of profound shock. During the night the patient partially reacted, and on the following morning temp. 97 1/2° F., resp. 28, pulse very rapid and feeble. During the day patient had a movement from the bowels, but was unable to urinate. At 4.45 P. M., Jan. 17th, patient died.

Autopsy. When peritoneum was opened gas escaped from the cavity and fecal extravasation was present. The jejunum was ruptured four inches from its com-

Fig. 10

Rupture of intestine.

mencement. Perforation large enough to admit the finger, and the opening was opposite to the mesenteric attachment. Evidence of commencing general peritonitis, the membrane hyperæmic, and spotted with shreds of lymph.

If laparotomy had been performed at once in this case, it is not unreasonable to believe that the life might have been saved.

I have searched through many journals in English, French, and German, to find a case where laparotomy was performed for the relief of rupture of the intestine which occurred as the result of traumatism. The following case is the only one that could be found to meet precisely these conditions, and illustrates the necessity for the operation under these circumstances. Horsley, Mikulicz, Wiltshire, Treves, Andrews, and Marsh have performed laparotomy, and with success, in acute septic peritonitis: but I do not know of a single case where a successful laparotomy has been performed for rupture of the intestine which has been produced by traumatism, and only one case in which laparotomy was performed under these circumstances.

Case XXII.—Mr. Owens, of London, reports in *Lancet*, vol. ii. p. 663, 1885, a case where a patient sustained a rupture of the intestine from a plank falling upon the abdomen. There was no external injury. Patient had many of the signs and symptoms of perforation, and exploratory laparotomy was performed. The perforation was discovered, the opening sutured, and the viscera returned. The patient, however, died.

This case is a most important contribution to the meagre literature of this subject. Laparotomy was indicated, and it is to be regretted that the patient did not recover. The surgeon afforded the patient the only chance to recover.

Let me now refer to some cases which I have found in my researches upon this point, to illustrate from a clinical point of view the necessity for laparotomy in case of rupture of the intestine, but where the operation was not performed.

Case XXIII.—Dr. Perier reported a case of rupture of the intestine in *Le Progrès Médical*, January 26, 1884. The patient was run over by a carriage, the wheels of which passed over his abdomen. The patient was in marked collapse upon admittance, and died the following day.

Autopsy. The peritoneal cavity contained about two litres of blood, but no blood-clots. No traces of peritonitis. The intestine was found completely divided, and the retroperitoneal space was filled with bloody serum.

The points of interest in this case, Dr. Perier states, are the absence of any external violence upon the abdominal wall, associated with the fact of a complete section of the gut; also the absence of peritonitis with a rupture of the intestine. The cause of death was from internal hemorrhage instead of peritonitis; as is the rule in such cases, the hemorrhage was from a branch upon the anterior part of the aorta, and the blood extravasating posteriorly; laparotomy might have saved this patient's life. The gut could have been sutured, and in the absence of peritonitis the condition would justify the conclusion that laparotomy might have saved life.

Case XXIV.—Dr. Duplay reports also a case of rupture of the intestine in *Le Progrès Médical*, November 15, 1884. The patient was run away with, and it was supposed the carriage passed over his abdomen. Patient was in collapse, and died the same night.

Autopsy. The peritoneal cavity contained about two litres of blood, which escaped from a wound in the inferior mesenteric artery. The intestine was completely divided.

The reflections which Dr. Duplay makes upon this case are, that the absence of fecal extravasation in a case of complete rupture of the intestine is exceptional. He explains this fact by a reference to Jobert's experiments upon dogs, in which he showed that if the intestine be completely divided, the ends may contract by their circular fibres, and thus prevent extravasation; that feculent odor to the extravasated blood is explained by the phenomenon of endosmosis; that any hemorrhage, except, perhaps, from the aorta or the vena cava, ought to be controlled by a laparotomy. In this case a laparotomy might have saved the life of the patient, whereas a failure to perform this operation deprives the patient of the only chance of recovery.

Before dismissing this subject I wish to report a case which occurred to me last autumn, illustrating the uncertainty of the diagnosis of rupture of the intestine from collapse and tympanites.

Case XXV.—A. N., æt. thirty-five, admitted October 17, 1885, to Bellevue Hospital. Patient fell while attempting to climb into an upper berth on a steamer. She states that in her fall her side and abdomen struck upon the edge of the stool upon which she was standing. Upon admission patient's abdomen was distended, slightly tympanitic, and the slightest pressure upon the abdomen produced very severe pain. Respirations were rapid and thoracic in character. Pressure over the part struck was attended with excruciating pain. Pulse hard, wiry, and rapid. Constipation had existed previous to accident for several days. Temperature 100° F.; knees flexed. Patient was very nervous and excited; no vomiting. General peritonitis developed. A fracture of the last rib was discovered, which had produced the peritonitis. The opium treatment was carried out, and in twelve days the patient recovered.

The general signs and symptoms of peritonitis in this case, taken in connection with an injury, the nature of which has been shown to produce rupture of intestine, were strong evidences in favor of rupture of the gut. It is to be noted, however, that emphysema was absent, also hepatic flatness was not lost, and these two important signs were necessary to make a positive diagnosis. This case is mentioned in order to emphasize these two pathognomonic signs, and also to place the surgeon upon his guard, lest mere collapse with general peritonitis following a traumatism, may lead to error in diagnosis and treatment.

Case XXVI.—Dr. Hartigan reported a case of rupture of the ileum in the *Journal of the American Medical Association*. The specimen was taken from the body of a man who had been kicked in the abdomen. There were no external signs of injury. The patient died two days after the injury, and the autopsy showed signs of peritonitis produced by fecal extravasation.

This is another typical case where laparotomy would have afforded the patient his only chance of recovery, and there is every reason to believe that this operation would have been attended with success on account of the absence of hemorrhage and of only a single wound to suture.

The general conclusions which can be deduced from a study of the clinical and pathological facts thus presented in these cases of rupture of the intestine are these:

First. Clinically, emphysema is the only reliable sign of rupture of intestine, and collapse is the constant symptom with but a very few exceptions. But as collapse is present under so many other different conditions this symptom is not pathognomonic and loses its diagnostic value.

Second. Pathologically, the seat of the rupture is always in the small intestine, and this renders the operation less difficult than when the large intestine is involved.

Third. The sudden contraction of the circular muscular fibres of the middle coat of the intestines usually closes the opening in the distal and proximal ends of the gut, and thus prevents fecal extravasation into the peritoneal cavity, and this condition renders the prognosis more favorable than where rupture of the intestine follows ulcerative processes: because no peritonitis exists before the perforation, and in some cases no peritonitis follows the perforation. Death, in these cases, has been caused by hemorrhage and shock. Small hemorrhages are ar-

rested by the circular and longitudinal contractions, which, it has been demonstrated, prevent fecal extravasation.

Fourth. The mechanism of rupture of the intestine is somewhat obscure. It is probably caused, as Gendron and Ollive have pointed out, by the distended small intestine being pressed upon the vertebræ by a force acting in front and directed backward. By this mechanism there is a compression of the tympanitic gut between the force inflicting the blow anteriorly and the lumbar vertebræ posteriorly.

These ten cases of rupture of intestine are most interesting, because they illustrate an indication for laparotomy in visceral injuries, which operation has only been once performed, and then unsuccessfully. This injury opens another new field for inquiry and research, and enlarges the domain of abdominal surgery by adding another condition in which laparotomy should be performed, and without which the patient cannot survive. This triumph in abdominal surgery remains yet to be accomplished, and the first successful case will be eagerly looked for by the entire medical profession.

The *diagnosis* of injury to the abdominal viscera is a most important subject of study. With the exception of two signs, the diagnosis is to be arrived at by a study of the group of symptoms, any single one may be corroborative; but all of which, taken collectively, afford sufficiently positive evidence of injury to justify a surgeon in performing a laparotomy. The extravasation of the contents of the intestine in the wound, and the presence of emphysema in the adjacent tissues, may be said to be pathognomonic. There is, however, in addition to extravasation and emphysema, a chain of symptoms which has an important influence upon the subject of diagnosis.

Extravasation of fecal matter. This is a positive sign and admits of no exception. Whenever fecal matter is seen at the wound, it is proof that the intestine has been wounded. If the extravasation takes place within the peritoneal cavity, this sign is of no value until the abdominal cavity is explored.

Emphysema of tissues. This sign is also a positive one, and consists of the escape of gas from the intestine into the surrounding tissues, especially into the retroperitoneal, cellular, and connective tissue. This condition must not be confounded with an emphysema incident to an injury of the lung, which gives rise to the presence of air under the skin, and which might coexist with a penetrating abdominal wound, or from emphysema a result of gangrene of tissue from gas. In a penetrating stab or gunshot wound, emphysematous crackling is pathognomonic of perforation of the gut. I have seen this condition present in two cases of penetrating wound, and attach very great importance to the presence of this sign as evidence of a perforation of the gut.

Shock. The amount of shock depends more upon the idiosyncrasy of the individual than upon the actual injury to the intestine or organs. The persistency of the shock is of greater diagnostic value than its severity. I had one patient who had ten perforations in his intestine, and he lived nearly forty hours, and up to within four hours of death had no shock that could not be explained by an ordinary surgical injury. There was nothing at the outset that indicated perforation. The intestine is here upon the table, and it is a specimen which is of great value, taken in connection with the clinical history, because it demonstrates that it is possible not only to have one but a great many perforations of the intestine, and yet no shock be present sufficient to explain the condition. Absence of shock will not always exclude injury to the viscera; its presence, however, if persistent, is a strong link in the chain of evidence.

The question of shock as a symptom in penetrating wounds of the abdomen, is most important. My experience in many such cases has led me to believe that the shock is more apparent than real. This symptom in penetrating wounds is, to my mind, analogous to that observed in strangulated hernia. Both symptoms are manifestations of a depression of the sympathetic nervous system, and not the cerebro-spinal. No surgeon would hesitate to operate for the relief of a strangulated hernia because great shock was present. But in strangulated hernia the shock is due to a pressure upon the sympathetic nerves and ganglia which preside over the involuntary muscles of the alimentary canal. The shock is at once removed after the stricture is divided, and the patient's condition is immediately improved. In nearly fifty cases of strangulated hernia of which I have notes, and many of which have been sent to me through the kindness of Dr. Knight, of the Hospital for the Ruptured and Crippled, there are only three cases that I can find, where the patient died during or immediately after the operation. The shock in most of these fifty cases was as severe as in any case of stab or gunshot wound of the abdomen that I have seen. This condition of shock is precisely the same in the penetrating wounds, and I cannot find a case (excluding the three) in which the condition of the patient was not improved after the operation.

I do not mean to undervalue the symptom of shock; but I believe it is more apparent than real, and that its presence, even to a considerable degree, should not deter the conscientious surgeon from beginning a laparotomy. I feel sure that most of the cases in my list of penetrating wounds were improved, as regards the collapse, as soon as the peritoneal cavity was opened.

The shock in abdominal surgery was forcibly impressed upon my mind by a case which occurred in Langenbeck's clinic, in the winter of 1876. A case of strangulated hernia was admitted to the clinic in a moribund condition; Langenbeck operated and the patient expired upon the operating table. I remember well the remarks which this renowned surgeon made, as well as those in connection with this subject in his lectures upon military surgery. He said that he had seen patients almost pulseless with a strangulated hernia, and reaction follow after division of the stricture, and recovery take place. He said, further, that in these cases it is the duty of the surgeon to operate; because a patient may rally though moribund at the time, and the opera-

tion itself is the only possibly chance of recovery. The collapse is always greatest in an acute case of strangulation, when the hernia has appeared for the first time, and the analogy is observed in penetrating wounds. In old hernia the shock is never so severe.

Following the teaching of this great surgeon, under whose instruction it was my privilege to be for nearly two years, I feel that I have saved several lives which might be said to have been almost hopeless. Out of a number of cases operated upon for relief of stranulated hernia, where the patients were in extreme collapse, some have lived because herniotomy was performed, even though the shock was very profound. The same principle holds good in penetrating wounds, and the operation of laparotomy should be employed irrespective of shock, which is of a peculiar nature, is deceptive as to its severity, and offers no tangible excuse for a surgeon to decline the operation because he may think his patient will die upon the table.

The shock in those cases where there is no wound of the viscera, can, perhaps, be explained by the anatomical connection between the last seven dorsal nerves, which preside over the movements of the abdominal walls, and the splanchnic nerves, which are derived in great part from these dorsal nerves. For example, the effect of such stimulation upon Auerbach's plexus, which is supposed to control the peristaltic action of the intestine, is to produce a marked depression of the sympathetic system, and consequently the shock appears greater than it really is.

Thus, it is obvious that the presence or absence of shock affords no information to the surgeon as to direct injury of the intestine. There is one case reported by Taylor, where the duodenum was torn across, and the boy walked a mile and died in thirteen hours. Another case is reported by Poland, where a man, after a rupture of the intestine, experienced so little shock that he walked to his bed and undressed himself. Key reports a case where a man continued to carry sacks of flour to a vessel after rupture of the intestine. Agnew relates still another case, where a patient was able to wheel a cart across the yard. In one case which I had, there were several openings in the gut, and little or no shock present.

The shock, then, may be present immediately, and death supervene within an hour, or it may be deferred for hours—in the meantime the patient walks about the room; or shock may be absent for a day or two, and then the patient die in sudden collapse.

Tympanitic resonance over liver. This is a most important physical sign. It cannot be relied upon, however, as positive evidence of perforation. Liver flatness may be absent, and a tympanitic resonance be present, and yet other conditions than perforation may have brought about this change. Sudden distention of the colon, which may force the anterior border of the liver upward against the anterior wall of the chest, will, according to Prof. Janeway, cause the percussion note to be tympanitic over the normal area of liver flatness. In this event the liver flatness is posteriorly greater than normal, provided that there is no marked emphysema of the lungs.

Persistence of liver dulness, or flatness on percussion, Prof. Flint regards as of much importance as evidence against perforation. He has found that the injection of a small quantity of air into the peritoneal cavity in the cadaver causes the hepatic dulness or flatness over the liver to disappear, a tympanitic resonance taking its place. Clinical observations have shown that gas escaping from an intestinal perforation gives rise to a tympanitic resonance in the hepatic region. A tympanitic resonance in this region, however, is not proof of the presence of air or gas in the peritoneal cavity, inasmuch as this resonance may be caused by the transmission of resonance from the colon above the lower margin of the liver. But, if dulness or flatness over the liver persists, it may be concluded with positiveness that the peritoneal cavity is free from air or gas.

Dr. Biggs has called attention to two important facts: that adhesion of the intestines to the anterior abdominal wall may give rise to tympanites, or that a previous hepatitis may result in adhesion of the peritoneal covering of the liver to the abdominal wall, and thus prevent the escape of gas over the liver area. These are valuable observations to bear in mind.

Sudden meteorism. This is another symptom which is of great value as a diagnostic sign. It is difficult to differentiate this condition, which may be caused by a perforation from the tympanites following acute peritonitis, which may develop in a few hours. It is the suddenness of the meteorism, as well as its persistency, which must be taken into consideration. It must be observed that sudden tympanites may result also from a blow upon or injury to the abdomen or spinal cord. This condition of tympanites is due to a paralysis of the muscular coats of the intestine, and must not be mistaken for tympanites over the liver, the result of perforation.

Subnormal temperature. This symptom is generally present before peritonitis is developed, owing to the condition of collapse or shock in which the patient is usually found.

The *pulse* is rapid and feeble, and this sign is of great value. I have seen, in one case, the only thing pointing to a serious lesion in a penetrating wound was the great rapidity of the pulse and its feebleness. These characteristics of the pulse may be present in other injuries, but no serious lesion of the viscera can occur without a disturbance of the character of the pulse.

Fixed pain distinctly located. This is also a valuable symptom taken in connection with others, but is of no value by itself. I have seen, lately, this symptom present to a marked degree in a case of strangulated hernia which had been reduced by taxis, and I suspected a continuance of the trouble which it was hoped was relieved by the taxis. The pain was intense, and was localized and persistent; but, after twenty-four hours, subsided under the influence of morphia, and the patient recovered.

Vomiting. A symptom usually present in penetrating wounds, but one which is also present under so many other conditions that its value is only to be estimated in connection with the train of symptoms. Its absence will not exclude perforation; its presence is only corroborative proof.

Bloody stools. A most valuable sign in perforation, but one seldom seen, as peristalsis seems to be suddenly arrested for a time in the alimentary canal below the seat of injury. I have never seen this symptom, but I find it described by others, and should place great reliance upon its presence.

Retention of urine. This symptom varies, and to its presence no special importance can be attached. I have felt the bladder distended until it reached nearly to the umbilicus, and the patient was unconscious of the fact. The physician assured me that he had only just passed the catheter. A search should be made for albumen and for indican in cases where there is supposed perforation; the same as should be done in strangulation.

Anxious physiognomy is generally present in these visceral wounds, and the patient is extremely nervous. The patient's face is similar to that seen in cases of strangulated hernia or cholera.

The *respirations* are rapid and shallow, and for the most part thoracic. The muscles presiding over abdominal respirations are quiescent.

Acute peritonitis develops very soon after perforation or any visceral lesion. It may take only a few hours to develop. Its presence is, of course, most discouraging. As a symptom of perforation, the development of acute peritonitis is most significant.

Technique of the operation. In laparotomy every detail must be conscientiously observed. The success depends upon the manner in which the minutest detail is carried out during this formidable operation. The operating-room should be thoroughly disinfected with burning sulphur, which should be placed near the ceiling, and as the gas descends the room can be properly disinfected. The pan of sulphur should never be placed upon the floor, because the vapor will not ascend and such disinfection is useless. The temperature should be high, and kept so during the entire operation.

All known stimulants should be in readiness for immediate use, including the transfusion apparatus with Mikulicz's solution prepared as already mentioned.

The patient's abdomen, chest, perineum, and thighs should be thoroughly washed with hot water and soap, the hair shaved with a razor, and then all the parts irrigated with a bichloride solution (1 : 1000). The umbilicus should be cleansed, as this is a most important focus for septic infection. The bladder should be emptied by the catheter. New and previously disinfected towels are to be saturated in the bichloride solution or sulphurous acid solution and placed over the parts, thus protecting them during the operation.

All the instruments, ligatures, sutures, and drainage tubes should be placed in a glass tray filled with a solution of carbolic acid (1 : 40), and no instrument should be used without this immersion; if an instrument is to be used a second time during the operation it should be again placed in the tray.

The sponges should be counted, and should consist of the Zymoca flat sponges or "elephant's ears," as they are called in commercial language, and also round sponges and some large ones for use in absorbing blood. Every sponge should be bleached, disinfected, and kept air-tight until wanted for use at the operation.

The antiseptic dressings should be made for the special case, and prepared with the greatest possible care. The number present at the operation should be limited to a few, who have not recently visited the dead-house or a case of infectious disease.

But one assistant should introduce his hand into the cavity beside the surgeon, and this only when it becomes necessary. I have heard recently of a surgeon who requested some medical men present at a laparotomy to introduce their fingers into the cavity to experience the sensation of actually touching the liver in a living person.

The surgeon and the assistant having thoroughly cleansed themselves by washing and by irrigation, are now ready to proceed with the different steps of the operation. The incision should be made in the median line; any deviation from this rule will be found objectionable in many respects. The side incision does not permit the free exploration of the cavity, involves also dividing planes of muscles the hemorrhage from which is troublesome to control, and the primary union difficult to secure. The median incision divides no vessels of any importance, passes through the linea alba, which can be securely sutured, and is not likely to give rise to a ventral hernia. If the incision can be made in greater part above the umbilicus, there is less difficulty in returning the viscera. This incision should be made under warm irrigation; and before the peritoneal cavity is exposed, an exceedingly weak solution of bichloride of mercury should be prepared. The peritoneum can best be divided by using the index and middle fingers as guides, and cutting between them with a probe-pointed bistoury. Some surgeons recommend at this stage paracentesis intestinii to relieve the distended gut. This is attended with danger, because the intestine, being more or less inflamed, will not always contract to close the small aperture.

The surgeon must now introduce his hand, thoroughly cleansed and warmed, into the cavity, and explore. The manipulation necessary depends upon the indication for the operation. It is always well to pass the hand directly to the cæcum and feel if it is collapsed. If it is, there must be obstruction in the canal upon the proximal side and in the small intestine; if dilated, the obstruction is in the large intestine. Volvulus will produce obstruction in stab wound, as has been illustrated. If the operation is for wound, the presence of adherent clots, or fecal extravasation, will often reveal the intestinal wounds in the vicinity. If no wound is found, it may be necessary to withdraw the intestine and to examine it carefully. The intestine should be wrapped in towels or flat sponges, and kept outside of the cavity as short a time as possible. The wounds should be sutured, the cavity sponged dry, and the wound sewed by first placing a continuous suture of catgut in the peritoneal membrane. A second row of sutures of silk or silver should be introduced into the linea alba, and a third line of sutures into the skin. The tube should be introduced between the skin and muscles, and in the lower angle, and the

antiseptic dressings applied with moderate compression.

The after-treatment should consist of opium, to be given in such quantities as seem best to control any pain, to arrest peristalsis, and to quiet patient. The opium should be discontinued as soon as possible, for its use beyond the time to control peritoneal inflammation is attended with detriment on account of the tympanites, and this condition is unfavorable in a wounded gut, for fear of tearing open the wound. The diet should consist of milk and brandy, and great care should be exercised to prevent vomiting, which is an unpleasant complication. In less than a week the patient should be out of danger. and in ten days may sit up, and if complications do not arise, in two weeks he should be well.

The conclusions at which I have arrived from a study of those cases which have occurred to me recently, together with many others during the past few years, and also from those cases reported by other surgeons, are these:

First. That penetrating stab wounds of the abdomen are less fatal than penetrating gunshot wounds, but that the former are fatal in too great numbers to content us with the older methods of treatment.

Second. That if the stab wound has injured the intestine or any abdominal organ, laparotomy is indicated. That it may be indicated also in cases where the gut is not penetrated, but where the gut may become twisted as a result of the stab wound.

Third. That in a penetrating stab wound regarding which doubt exists, the diagnosis should be made certain at once, in order to pursue a proper line of treatment. The indications for laparotomy should be extended also to injuries of any organs within the abdomen.

Fourth. That laparotomy offers no great additional danger to the patient, if properly performed under the strictest antiseptic precautions.

Fifth. That while the number of exploratory laparotomies in stab wounds of the abdomen afford insufficient data upon which to establish any fixed rule of practice, the same principle which is recognized in the performance of laparotomy for gunshot wounds of the abdomen is also applicable to penetrating stab wounds.

Sixth. That the enlargement of the original wound for an examination of the peritoneal cavity will not enable the surgeon to exclude in all cases fecal extravasation, perforation, volvulus, or hemorrhage. These may all exist, and no evidences of their presence be manifest upon inspection through a small opening. My own experience accords with that of Prof Weir, that enlarging the wound may or may not offer the essential knowledge.

Seventh. The size, shape, character, and velocity of the bullet, the attitude of the patient, the kind of weapon used to produce a stab wound, seem to me to influence the question of laparotomy. Any and all of these injuries are likely to produce perforation; and if there is any value in abdominal section, it should be promptly performed, irrespective of the facts connected with the penetrating abdominal wounds.

Eighth. It is possible to have a fatal hemorrhage from the large venous trunks in the abdomen, and this hemorrhage not be discovered until the cavity is about to be closed, when an attempt is made to sponge out the bottom of the peritoneal cavity. This has occurred to me in two cases, in one of which I had closed seven openings, and in the other I had examined the viscera in the cavity. The hemorrhage was checked at the time of the opening, and was not apparent until the close of the operation.

Ninth. That the sutures, if properly applied, will close the perforation in every case, no matter how lacerated these wounds are. The sutures will close the wound in case of resection of the gut, so that no leakage will occur if water is forced through the sutured intestine.

Tenth. The success of laparotomy is to be attained where every arrangement is complete and perfect. Everything depends upon the preparation which is made for this operation, and the antiseptic conditions under which it is performed. The shock, the perforations, the resections of injured parts of the canal, and the after-treatment, are all important steps in this great operation; but the one obstacle yet to be overcome in the management of these cases is the control of the hemorrhage from large venous trunks, and until this object is accomplished, the science of surgery in this operation cannot be said to have arrived at a state of perfection.

In the present unsettled state of opinion, it would seem best not to perform this operation in medico-legal cases without the full sanction and support of a consultation. The courts of law have recently agitated the question of the propriety and the justifiability of this measure in penetrating wounds, and the legal profession have already upon several occasions, to my personal knowledge, found refuge in this operation to defend a criminal on trial for murder.

When laparotomy is placed among the well-recognized operations in surgery, and when all opposition to it has ceased, the credit of this great achievement will be due to the influence of the writings and teaching of the late Prof. Gross. As far back as 1843, he said in his monograph on the "Nature and Treatment of Wounds of the Intestines:"

> "Here the most prompt and decisive measures must be resorted to, or the person will perish from peritoneal inflammation. . . . It will not do for the surgeon to fold his arms and look upon the scene as an idle and uninterested spectator. Far otherwise. He has a duty to perform, and that duty consists in dilating the external wound if it be not already sufficiently large, in hooking up the injured bowel, and in closing the solution with the requisite number of stitches, at the same time that the effused mater is carefully removed with tepid water and a soft sponge."

The remarks of the late Dr. J. Marion Sims gave new impulse to these views enunciated by Dr. Gross nearly half a century ago, and these theoretical opinions were again supplemented by the distinguished work of Dr. Parkes, of Chicago, who made a practical application of the theory in his researches

and experiments upon lower animals. It remained for Dr. Bull to make the practical application of this knowledge available to higher uses, and thus step by step, through nearly half a century, we have arrived at the accomplishment of our object. It is a source of national pride, that laparotomy in penetrating wounds and visceral injuries of the abdomen was conceived, developed, and perfected in America.

A CASE OF RETROPERITONEAL SPINDLE-CELLED SARCOMA WITH EXTENSIVE THROMBOTIC AND HEMORRHAGIC CHANGES.[1]

By WILLIAM OSLER, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA

In addition to features of general clinical interest, the following case is worthy of record from the rarity with which spindle-celled sarcomata form large abdominal tumors, and still more so from the remarkable hemorrhagic destruction which the greater portion of the growth had undergone.

Michael D., æt. sixty, machinist, resident of this country for thirty years, was admitted to the University Hospital, September 25, 1885, with a tumor of abdomen. Has been a moderate drinker, has used tobacco to excess. Has been healthy, "never sick a day" until present illness. Family history good; has nine healthy children. About six months ago, he noticed that the abdomen was getting large, but felt no inconvenience, and it was not until two months ago that he began to feel uncomfortable after eating, and began to lose flesh and strength. Has lost about eighteen pounds in weight. His appetite has, at times, been ravenous, and the thirst excessive. Bowels obstinately constipated, no movement without purgatives. No pain of any kind in abdomen, only an unpleasant fulness after eating.

Present condition: Moderate emaciation; weight 117 pounds. Complexion muddy. Temporal arteries prominent and tortuous. Tongue clean; appetite good, but he cannot take large meals on account of sensation of fulness. Says he is in good health, only weak. Passes about seven pints of pale urine of a specific gravity of 1.004, with a trace of albumen; no casts, no sugar. Examination of thoracic organs negative. Abdomen presents a symmetrical prominence in the neighborhood of the umbilicus, rather wide and flat. Superficial veins not distended. On palpation a solid tumor is felt occupying the hypogastric and umbilical regions, and extending laterally into the flanks. It is irregularly nodular on the surface, slightly movable, and the rounded outlines above and laterally can be distinctly felt. Below, the outline is not clear and cannot be defined. Grasped firmly, it can be moved as a solid uniform mass occupying a median position. No one part is softer than another, and there is no sense of fluctuation. Percussion gives a dull note over the tumor, tympanitic above in the epigastric region and in the lateral part of the umbilical. From spleen and liver the mass can be easily separated both by percussion and palpation. There is no pain in handling. Measurement round umbilicus thirty and three-quarters inches. Glands in groin not enlarged, feet not swollen.

He stayed in hospital until November 11th, the condition remaining unchanged, except that he gained three or four pounds in weight, and his general health had improved. The condition of the urine was of interest: for several weeks he continued to pass more than seven pints daily of pale urine of a low specific gravity, with a trace of albumen, but in the last three weeks in hospital the amount fell to about three and a half pints. On October 18th he was made the subject of a clinic, when the diagnosis of Lobstein's retroperitoneal sarcoma was made. The polyuria was attributed to irritation of the renal nerves caused by the pressure of the tumor.

On the 10th of November he went home. Subsequently he was admitted to St. Mary's Hospital, under Dr. O'Hara, and the upper part of the mass, which had become soft, was aspirated by Dr. Mears, and a couple of quarts of bloody fluid removed. He was taken to his home, where he died in April, and I have to thank Dr. Miller, under whose care he was, for an invitation to be present at the autopsy, and for permission to utilize the specimens.

Autopsy, with Drs. Mears and Miller. Considerable emaciation, abdomen distended, discolored in upper part. A solid tumor could be felt occupying a large part of the cavity, firm below and soft above. On exposing the peritoneum a large mass occupied the lower three-fourths of the cavity, pushing up the intestines. The membrane was smooth, in places covered with small grayish-white nodules, and in the flanks there were a few adhesions. At the top of the tumor a coil of jejunum was adherent, and of a dark, pigmented appearance. Many large veins coursed over the surface of the tumor, which was covered by the glistening peritoneal membrane. In the upper, flaccid portion was an orifice, through which blood oozed, and in the peritoneal cavity there were about two pints of fluid of a similar character. The intestines were carefully removed; there was only the one adhesion, already mentioned. The mass, which was covered by peritoneum, occupied a median position, lying upon the spine, and extending to the brim of the pelvis. The hand could be placed behind it and passed down the vertebral column, and into the concavity of the sacrum, and in these regions the tumor had no adhesions. Below and to the left it was loosely united to the lower part of the sigmoid flexure, but the chief attachment was to the brim of the pelvis on either side of the fundus of the bladder, and particularly to the right side. The bladder itself was not disturbed in position; the top of it could be seen lying between the symphysis and the tumor. The adhesions, which were readily separated, were closest to the transversalis fascia on the right side near the pubic bone. The weight was estimated at about eight pounds.

The tumor consisted of two parts, an upper cystic, flaccid portion, and a lower solid one. When opened, the cyst contained rather more than a pint and a half of bloody fluid, with flakes of yellowish-brown material, which also lined the wall, giving an appearance not unlike a large aneurismal sac. The walls were thin, and consisted of a peritoneal investment, within

[1] Read before the Philadelphia Pathological Society, January 14, 1886.

which was a firmer, condensed fibrous tissue. The blood removed at the tapping had evidently come from this sac. A transverse section across the solid part showed a central, firm, dry, yellowish-brown tissue, which cut with resistance, and which was everywhere surrounded by extravasated blood, occupying a position just within the capsule, and in some places extending into the substance. In this section there was nothing suggestive of a neoplasm, the tissue resembled the dry, leathery contents of an old aneurism, except that there was no lamination. Section of the lower part of the mass near the pelvis revealed several soft, grayish-red portions, cerebriform or encephaloid in appearance, and evidently of a sarcomatous nature. They formed, however, a very insignificant part of the entire mass.

There was no special enlargement of the retroperitoneal or mesenteric lymph glands. The stomach and intestines presented nothing abnormal. The pancreas and spleen were unaffected. The liver contained one secondary mass in the left lobe, the size of an orange, and several smaller ones. The kidneys were fibroid, and the ureters and pelves dilated, particularly the right; due, doubtless, to pressure. The heart showed moderate hypertrophy of the left ventricle. Aorta smooth. Lungs much carbonized, and somewhat emphysematous. Brain not examined.

Histological examination: Teased portions showed that both primary and secondary growths were composed of large spindle cells, closely packed together. The remnants of the original growth situated at the lower part of the tumor were quite distinctive, and had not undergone degeneration. There were also, in some places, portions of sarcomatous tissue just within the capsule, separated from the central dry thrombus by freshly extravasated blood. Sections of hardened portions showed a typical spindle-celled growth. The thrombus presented a finely granular basis-substance, between strands of translucent, hyaline material. All traces of cell structure were gone.

Remarks.—The points of interest about this case may be briefly considered under the following heads.

The character of the growth: Spindle-celled sarcomata rarely form large abdominal tumors. In the examination of a considerable number of new growths of all sorts, removed from the peritoneal cavity, I have not met with a similar one.

The situation of origin was unusual. I fully anticipated that we should find it springing from the lumbar retroperitoneum, the common point of origin for large abdominal sarcomata. Here the growth seems to have begun in the subserous connective tissue in front of the symphysis, not from the periosteum, for it was quite loosely attached. It is interesting to note that spindle-celled sarcoma not infrequently originates in the connective tissue of Scarpa's space, a tissue directly continuous with that from which the tumor in question grew.

The looseness of the attachment and the readiness with which the tumor could be lifted out of the abdominal cavity made us regret that we had not yielded to the old man's urgent solicitation to have the abdomen opened.

The character of the regressive changes: So soon as a tumor attains any size we expect to find in it areas of degeneration, fatty, caseous, or calcareous; or, if a rapidly growing neoplasm, hemorrhages. Sarcomata are particularly prone to hemorrhage; indeed, when growing actively, it is rare not to find foci of extravasation in them. The effused blood not unfrequently becomes encysted, and the dark contents appear to result from the liquefaction of the coagulum. In a large tumor several such cysts may exist. Small scattered hemorrhages are more common, and the blood gradually undergoes changes without materially altering the appearance of the growth.

The condition in the case here reported is very unusual, as the greater part of the tumor had become converted into a dry, hard thrombus, while a considerable portion was occupied by a blood cyst, so that the mass resembled a huge hæmatoma rather than a neoplasm. Such general hemorrhagic destruction of a large tumor is not often met with, and I have not been able to find the record of a case with just such extensive thrombotic changes as here described. The mode of production can be readily understood from the appearances presented by the mass. No doubt softening and destruction by hemorrhage first occurred, as existed, indeed, at the upper part of the tumor, which formed a large blood-cyst, the walls lined with thrombi, and in the fluid contents of which were flakes of firm fibrin. This cyst had been much larger, as nearly two quarts of bloody fluid were removed from it by aspiration. Had life been prolonged, the blood thus extravasated would, doubtless, have become inspissated by the absorption of the more fluid parts, and the remainder have been converted into just such a dense, dry mass as existed at the lower part of the tumor. It seems reasonable to infer that the firm, hard thrombus which constituted more than one-half of the entire tumor, was formed in this way. Possibly the hemorrhages beneath the capsule, which were very general, aided the process, though nowhere could a distinct lamination be detected.

The polyuria: Pressure of new growths in the abdomen upon the solar plexus or upon the renal nerves may cause a very great increase in the flow of urine. The irritation in this case was transitory, as the amount fell to normal before he left the hospital. We do not yet know the precise conditions under which this occurs. Instances of it are rare, and we need careful observations on the state of the nerves. Dickinson, in his work on *Diabetes*, mentions a case in which degeneration of the solar plexus was found. Owing to the unfavorable circumstances under which the post-mortem was performed, no dissection of the nerves could be made in this case.

SUPERNUMERARY MAMMARY GLANDS AND NIPPLES.[1]

THREE CASES.

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That only about one hundred cases (105, Liechtenstern) of polymastia have been recorded will at once

[1] Read before the Philadelphia Pathological Society, January 14, 1886.

appear as the *raison d'être* of this brief communication. A somewhat unusual opportunity for the examination of patients in hospital practice and in the examination of recruits, has convinced the writer that these additional mammæ are not, at least in this country, of very frequent occurrence. It is proper, however, to add that Dr. J. Mitchell Bruce is of the opinion that the number of cases seen by practitioners and not reported must be very great. It becomes somewhat interesting to look into and, if possible, arrive at the cause of these abnormalities. Laycock, in endeavoring to explain the existence of the accessory glands, thinks that the mammæ are simply enlarged and highly developed sebaceous glands, and may make their appearance in any part of the body.

I might cite as a possible example of this theory, Klob's case of an accessory mamma growing on the left shoulder of a man, on the prominence of the deltoid.[1] It was a true mammary gland, and had a nipple about a quarter of an inch in length, the entire gland being about the size of a walnut.

In turning to the morphological significance of these cases, we must consider the character of the mammary glands in the different orders of mammalia, remembering that in the marsupialia and the monotremata the glands possess no nipple, their orifices being mere scattered pores in the skin.[2]

In the Simiadæ, from the anthropoid apes to the marmosets or arctopithecini, "the teats are only two in number," and they are pectoral.[3] In the lower section of the Primates, the Lemuridæ, "sometimes there are one or two pairs of teats on the abdomen in addition to the ordinary pectoral pair."[4]

In the aye-aye (Cheiromys Madagascariensis) "there is but one pair of nipples, situated about one inch and a half in advance of the vulva, and one inch apart."[5]

We are all familiar with the vulvo-pectoral teats of the common carnivora and the inguinal udder of the ruminants. In the Pteropodidæ (fruit bats or flying foxes) and the flying "lemur," Galeopithecus, we find axillary teats.

So if we desire to explain the presence of supernumerary mammary glands in women by the reversion theory, we see that there are numerous places where the accessory organs may grow; yet, as we will see later, the recorded cases seem to differ in their site from all morphological laws.

That our species present the pectoral position of the teats does not show any special superiority, as the glands are found in the same position in the bat, dugong, manatee, elephant, sloth, and the ant-eater.

We do not find the number of teats always in relation to the offspring; as, for example, the rat has twelve, whereas the guinea-pig has but two; again, the tenrec (centetes), an animal somewhat like a hedgehog, has twenty-two nipples, and Owen tells us that in the European hedgehog there are ten, ranging from the pectoral to the inguinal region, adding that the thin, flat mammary gland of this insectivorous animal seems to form a continuous stratum.

Before leaving this part of our subject, it may be interesting to note that Professor Owen[1] describes a female orang-outang with an accessory nipple on the left side, below the normal one and of smaller size.

The case that I am about to record was noted in the spring of 1884, in company with my student, Dr. Thomas D. King, of Springfield, Ohio.

CASE I.—John J. B., æt. thirty-six, a healthy, well-developed man, came under my care for subacute alcoholism, and while examining his chest for impending pneumonia an accessory nipple was noted on the right side almost on a line with and three inches below the normal one, similar in size, presenting an areola with glandular nodules and a few stiff hairs. There was no discharge from either the normal glands or the accessory nipple; it had never caused the patient any inconvenience, beyond a certain hesitancy and delicacy in confessing the abnormality.

In conversation with my patient, I learned that his sister presented the same abnormality, and an interview was arranged.

CASE II.—Mrs. N. M., æt. thirty-eight, mother of four children, the youngest a nursling. The woman was a perfect specimen of the healthy Irish-American female that we so frequently meet.

The accessory breast in this case was on the left side, normal in appearance, somewhat smaller than the other two, but was functionally active with a good flow of milk from a perfectly normal nipple; during my visit the child would nurse indiscriminately from any of the breasts. The woman informed me that she had nursed all of her children in this way. I learned that the supernumerary gland developed coincidently with the others, becoming active as they did and again physiologically barren as their secretion retroceeded.

These two cases, and the two reported by Handyside,[1] open an interesting field in the study of the inheritance of the abnormality. In no case recorded by Bruce (Ibid.) was heredity at all clear. Liechtenstern could find no illustration of heredity among his own cases, but remarks that inheritance was indicated in 7 of the 92 cases recorded in literature.

All the instances of supernumerary nipple that came under observation were situated on the front of the trunk, below the level of the ordinary mamma and somewhat nearer the middle line, but unfortunately for those adherents of the theory of morphological explanation of these cases, abdominal nipples are extremely rare. Bruce, however, describes two cases where one of a pair of nipples was distinctly below the costal cartilages.

Liechtenstern's conclusion, from his own experience and from the recorded cases, is that "accessory nipples and breasts occur in 91 per cent. of the cases at the front of the thorax; and in 94 per cent. of these below the normal." In one of Liechtenstern's

[1] Zeitschrift der k. k. Gesellsch. der Aerzte zu Wien, 1858, No. 52, p. 815.
[2] Prof. W. H. Flower, LL.D., F.R.S., and G. E. Dobson, M.A., M.B.
[3] Huxley's Manual of the Anatomy of the Vertebrated Animals.
[4] Huxley, Ibid.
[5] Prof. Owen, The Anatomy of the Vertebrates, vol. iii.

[1] Anatomy of the Vertebrates, vol. iii. p. 730.
[2] Notice of Quadruple Mammæ, the lower two rudimentary, in two adult brothers, by P. D. Handyside, M.D., etc., Journ. of Anat. and Phys., vol. vii. p. 56, 1873.

cases, the nipple occurred in the axilla, which is an extremely rare situation. All observers agree in stating that additional mamma or nipples are most frequently seen on the left side. Liechtenstern endeavors to account for this by the well-known fact that the left mamma is, as a rule, more developed than the right, and that mothers use the left more than the right in suckling. He is of the opinion that the same relation exists in the child and virgin.

As to the frequency of this abnormality, I may mention that in Bruce's investigations of 3956 persons 61 cases of supernumerary mamma or nipples were found, being 1.54 per cent. Of these cases 51 were simple cases, presenting a single supernumerary nipple or mamma, 10 were multiple, presenting more than one supernumerary nipple.

A perusal of Mitchell Bruce's exhaustive article would lead one to conclude that supernumerary nipples or mammæ must be much more frequent in England than they are in this country, as, out of 315 persons taken as they come and go in a dispensary service, he found that 287 individuals presented no supernumerary nipples or mammary glands; 24 individuals presented one or more supernumerary nipples or mammæ; and 4 individuals presented appearances which were regarded as doubtful instances of the abnormality. A representation of this result in percentages would be as follows: 91.1 per cent. presented no supernumerary nipple or mamma; 7.619 per cent. presented one or more supernumerary mammæ or nipples: and 1.27 per cent. possessed what was doubtfully regarded as the abnormality. This is certainly a high rate of frequency, even above that of Liechtenstern, who places it at "1 in 500 persons at least." As to the relative frequency of the abnormality in the sexes, it appears from the above statistics, which are undoubtedly the best that are available, that supernumerary nipples occurred very nearly twice as frequently among men as among women; this conclusion also agrees with Prof. Liechtenstern's result. It will be readily understood that definite statistics are extremely hard to formulate in these matters, as some cases will undoubtedly be overlooked unless attention is particularly called to the mammary regions. Again, some of these supernumerary nipples may quite escape detection on account of their want of resemblance to the normal standard; for example, the additional nipple may be wanting in the areola, the follicles, the marginal hairs, or, again, the papilla may be poorly developed, as may also be the terminal depression or opening. We may be misled by a hair springing from the summit of the papilla, as in one of Bruce's cases.

Before leaving the subject, it is, perhaps, well to mention some cases of supernumerary mammæ in unusual situations.

Dr. Fitzgibbon[1] records the case of an individual with double and symmetrical supernumerary nipples below and within the normal, together with two pigmentary deposits, one on either breast higher up.

Accessory mammæ, with nipples, have been found in the axilla,[2] and to Liechtenstern also belongs the credit of describing two cases of dorsal mammæ; his references, quoted by Bruce, are as follows: 1. Ch. F. Paulinus (*Observat. Medico-physic Select*, in the *Miscell. Curios. Academ. Med. Phys. Nat. Curios.*, dec. II. ann. iv. page 203, Appendix); 2. Joh. Otto Helbig (*De rebus variis indicis*, Obs. 194, quoted in *Miscell. Curios.*, etc., dec. II. ann. ix. and x. p. 456, ii.).

Again must we credit Liechtenstern with showing the fallacy in the statement of the existence of inguinal mammæ. He has pointed out the fact that the idea has arisen by careless reference to Roberts's case (see Luschka, *Anatomie des Menschen*, Band I. Abthril. 2) of a woman who had an accessory mamma on the outer aspect of the left thigh, four inches below the trochanter; it was accidentally discovered by the patient's child, who one day attempted to suck the nipple.

Dr. H. L. Turney[1] reports a case of additional mammary gland in the right axilla; it was nippleless, but secreted milk freely from several orifices after each confinement.

Dr. Cohn presented a patient before a meeting of the Berliner Medizinische Gesellschaft, in February, 1885, with an accessory mammary gland in the left axilla, from which milk dribbled away. There was no nipple. Mr. A. H. E. Cameron[2] also records a case of left axillary mammary gland without nipple; and Mr. Bickersteth informs him that he has seen two similar cases of nippleless glandular tumors bearing the characters of mammary glands.

The following case occurred in the practice of Dr. H. R. Wharton, of Philadelphia, to whom I am indebted for the notes:

Case III.—Mrs. S., æt. twenty-seven, in her third confinement, called my attention to a supernumerary nipple on the right breast, situated about three inches below the normal nipple, just at the edge of the mammary gland. It was smaller than the normal nipple, had a well-developed areola, contained milk, and the child could use either indiscriminately. Before her first confinement she thought it was a mole, but at this time it became enlarged and contained milk which escaped freely from it at the time I saw her.

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5. Dr. H. L. Turney: Nashville Journal of Medicine and Surgery, April, 1883.

6. London Medical Record, Aug. 15, 1885, p. 319.

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8. Leclerg: E. de Caen. Observation d'une femme

[1] Dublin Quarterly Journal of Medical Sciences, vol. xxix. p. 109. February, 1860.

[2] Liechtenstern, with illustration.

[1] Nashville Journal of Medicine and Surgery, April, 1883.

[2] Journal of Anatomy and Physiology, 1879, vol. xiii. p. 149.

ayant trois Mæmelles, Communication faite à l'Académie des Sciences. Gaz. des Hôp., 1852, t. iv. p. 9.

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300 S. Thirteenth St., Philadelphia.

HOSPITAL NOTES.

DISPENSARY FOR NERVOUS DISEASES, BALTIMORE.

Service of John Van Bibber, M.D.

Clinical Notes.

CHOREA.

The increasing frequency of chorea makes the study of this disease most interesting at the present time. In the last two annual reports of the Dispensary for Nervous Diseases I have alluded to the marked increase of this disease, and lately I have been struck by the fact that in two days six cases of St. Vitus's dance applied at this clinic for treatment.

Both in the later text-books and in the journals the theory that heredity plays an important part in the production of chorea has been advanced, but I can discover no reason to think that any one of this series of cases has been brought about by hereditary influence. In fact, while we may find curious instances of a family tendency to choreic attacks, I think the observation is so out of proportion to the number of cases seen, that we must look to some other cause for the marked increase of a disease which, some years ago, was rarely observed. I do not pretend to deny that a neurotic tendency cannot be, and, in most cases, is not transmitted, but I find myself confronted at once with a difficulty in accounting for the development which we are called upon every day to observe at the Dispensary. Heredity can have no influence on the children of parents who have never heard of chorea, and who, from their position in life, have been denied the surroundings which tend to develop the nervous system in its higher and more intellectual side. Hence, in this clinical study of the subject, we must look to some other cause to account for a most interesting and important manifestation of nervous disease.

At the present time what I may term the over-balance of the nervous system in children is remarkable. We see to-day insomnia, headache, and other nervous manifestations among children, which were formerly confined to adult life. Chorea is now, in my experience, almost an epidemic, and it will be the object of these records of the service at the Dispensary to investigate the cause or causes of the increase of St. Vitus's dance, to determine by experience the best method of treating the disease, and to endeavor to suggest the means to prevent this unusual and alarming tendency. For this purpose accurate notes will be taken of all cases presented for treatment, and in a subsequent record the details of another series of cases will be submitted.

I select from the notes of my assistant, Dr. H. C. Ohle, the following data of six cases of chorea which applied to the Dispensary for treatment respectively on January 18 and 19, 1886.

Case I.—J. C., a girl nineteen years of age, is a seamstress by occupation. On inquiry, we learn that this is the third attack from which she suffers, they having occurred at intervals of about one year. Some time before symptoms became pronounced she lost her appetite, became nervous, slept badly at night, and was much depressed; her menstrual function, which, previous to this time, had been normal, became irregular. There was a like history in the two former attacks.

On arising about two weeks ago, after having spent a restless and nearly sleepless night, she felt very much depressed, and had a hysterical crying fit; from this time on, she was unable to attend to her work. She would let articles drop from her hand, seemingly unable to prevent it, and noticed curious twitchings and movements of her head, which extended to her arms and legs. I further learn that she works all day in a close room, and has been in the habit of going out very often in the evening to dance, etc., which, no doubt, tended to debilitate her.

On examination, we find that the head and the arms and legs of both sides are involved in the choreic movements, which seem to be aggravated somewhat after entering the room, possibly owing to the excitement induced by the examination. Patient is very anæmic, though apparently stout; has no appetite, cannot sleep at night, and is extremely depressed and hysterical. She was directed to remain as quiet as possible, to avoid all excitement, to remain in bed late in the morning and to retire early at night; and, as the weather was inclement, forbidden to go out. The therapeutical treatment consisted principally in conium, bitter tonics, and iron. Quiet, rest, and suitable food were insisted on, and these I have every reason to believe were carried out. She was discharged well on Feb. 18th.

Case II.—M. G., a girl sixteen years of age, lives at home with her parents. This patient had her first attack when twelve years of age, at which time her menstrual function was established; she has suffered recurrent attacks every spring since then, this being the fourth, which began one week ago. Patient is very tall and slender, extremely delicate in appearance, poorly nourished, and anæmic. She is subject to menorrhagia.

On examination, we find that the muscles of the *right* side of the head and arm are alone involved in the choreic movements, which are severe in character. She gives the usual history of anorexia, interference with sleep, etc. She is much depressed, and has a morbid fear that her trouble may prove fatal. She was directed to remain in bed late in the morning and to retire early at night, to rest, and to keep as quiet as possible, avoiding all excitement; was ordered conium, iron, and bitter tonics, and later on, arsenic. She grew worse after the first week of treatment, which was accounted for by the fact that she attended several meetings of the Salvation Army, in which she seemed to take especial interest. These were promptly prohibited, and the necessity for quiet and rest and avoidance of all excitement made clear to her; from the time she observed these directions she has much improved. Appetite is good and the choreic twitchings are reduced to a minimum. She is still under observation, although medicines have been discontinued, with the exception of iron.

CASE III.—A. H., a girl thirteen years of age, living with friends. Symptoms were first noticed about two months ago, shortly after the death of both parents, to which fact her friends attribute the chorea, the patient having been well and hearty previous to this time. After this sorrow she commenced to grow pale and thin, ate little food, and became excitable. The choreic movements were noticed at this time, but were thought to be the result of shock from the loss of her parents. They grew worse, however, and after two months she applied for treatment.

On examination, we find that the whole body participates in the choreic twitchings to a most excessive degree. She is unable to remain quiet, the movements persisting during the night, so that it is impossible for her to obtain sleep. She is very anæmic, and has no desire for food. She was directed to keep quiet, to rest in bed as much as possible during the day, and at night to take a hot sponge bath to spine, to be followed by rubbing with a coarse towel; potassium bromide was given to induce sleep. In addition, iron, bitter tonics, and conium were ordered. Isolation from other children was insisted on, so as to insure more perfect quiet and rest. She improved rapidly under this treatment, and after a week the potassium bromide was withdrawn, as sleep was obtained without it. Her appetite has become established, and she has so far improved that it was thought unnecessary for her to remain in bed during the day. She is still, however, under observation.

CASE IV.—J. B., a girl twelve years old, was presented for treatment by her mother, with the following statement: one year before, she had an attack of chorea, which was very protracted; she attends school, and is a very close student. After recovery from her first attack, she enjoyed good health until about six weeks ago, when she lost her father, to whom she was much attached. After this time she began to fail perceptibly, developing choreic movements.

On examination, we find that movements are confined to the left side of face and left arm; there are slight twitchings in left leg. She was very excitable, crying readily when questioned, which aggravated the twitchings greatly. She seems to be well nourished, possibly a little pale and anæmic. She sleeps little at night, which her mother thinks is owing more to her mental excitability than to the choreic twitchings; appetite is poor. Notwithstanding her condition, she insists on going to school.

Her mother was advised to take her from school, to keep her quiet in bed as much as possible, and away from other children. She was given conium, iron, bitter tonics, and later on, arsenic; at night potassium bromide was given. She improved slowly, and not so rapidly as the cases before cited, which can be accounted for by the fact that she was hard to manage, being very wilful and not ready to carry out the treatment. If she could have been treated under more favorable circumstances in a hospital, where the plan of rest and quiet could have been carried out, she would undoubtedly have progressed as favorably as the other cases.

CASE V.—M. G., a girl ten years of age, was presented for treatment, with a history of having been frightened two weeks ago, since which time she has had choreic movements in her arms. On inquiry, we learn that she had a previous attack when about six years old, which was, however, mild in degree. On examination, we find that the muscles of face and those of arms are involved to a great extent. Patient is very poorly nourished, and apparently badly cared for. Her mother was directed to keep her quiet, to give her at night a hot spinal sponge bath, followed by rubbing with a coarse towel, and, above all, to see that she got appropriate food, which directions were promised to be carried out. In addition she was given conium, elixir ferri et calcis, and calcic phosphate.

The girl is now much improved, the choreic movements have almost disappeared, although she is still delicate and pale; she is still under observation, the administration of elixir being continued.

CASE VI.—F. H., a boy nine years old, presented for treatment by his mother, with history of having enjoyed good health up to within two months. He attended school and was very studious up to that time, when he began to lose interest in his studies; about four weeks ago, he developed chorea on right side, which is excessive in degree. On examination, we see that the boy is delicate and puny-looking, and that the choreic movements are confined to the right side of the face and right arm and leg, and are violent in character, nearly twisting him around as he stands. He is unable to sleep, and complains of vague pains on affected side; appetite is very poor. Quiet and rest in bed as much as possible were directed, and isolation from other children to avoid excitement. In addition, the hot sponge bath and rubbing with coarse towel daily. Conium, iron, and bitter tonics, and later arsenic, at night potassium bromide, were given for a time. In this case, also, the progress was not as rapid or as favorable as desired, but it was impossible to carry out the plan of treatment ordered, as the mother is a widow and has eight other children.

In each of these cases a functional heart murmur was found.

Remarks. Of these six cases, three had suffered from former attacks of this disease, one having had three attacks, one four, and one was suffering from St. Vitus's dance for the second time. The three remaining cases were caused by fright or grief, and all were unconnected with rheumatism. I consider it to be rather remarkable to have six cases of chorea apply at a small clinic in two days, and I shall take special care to have accurate notes of this class of patients taken in the future, looking to the value of statistics for a specified time.

In an article on the "Rational Treatment of Chorea" (*American Journal of Neurology and Psychiatry*, May, 1884) I formulated the treatment which was successfully carried out in eighty-six cases of this disease, and since that time I have had no reason to vary this method materially. This consisted of a combination of medical regimen and proper physical care, and is briefly detailed in the cases above reported. Rest, tonics, food, and proper hygiene, are the principal factors in this treatment, and in most cases rest is by far the most important element. After confinement in bed during the day I find it necessary to refresh the system, and this can be done by the hot spinal douche and subsequent frictions.

In the next series of cases I will, as far as possible, give my ideas concerning the cause of chorea and the best method of preventing its development.

MEDICAL PROGRESS.

Calomel as a Diuretic.—Led on by the accidental observation that, in a case of dropsy, small repeated doses of calomel induced diuresis of high grade, Jendrássik exhibited the same drug in seven cases of heart disease in which diminished urinary secretion and static œdema were present. The maximum amount of urine passed daily under this treatment varied from four to eighteen pints, and averaged over nine pints. The maximum once attained, the amount passed gradually declined. Three grains of powdered calomel, three to five times daily, was the quantity usually given. It was found that large doses were inefficient, as they produced diarrhœa, while in the smaller doses, subjective metallic taste and other symptoms gave evidence of the absorption of the drug. It is interesting to note that a period of at least one and sometimes two or more days elapsed between the commencement of the treatment and the occurrence of diuresis.—*Centralb. f. d. ges. Therap.*, February, 1886.

"Opuscula Practica."—In Part VI. of *The Asclepiad* Dr. Richardson refers to a remedial agent which he believes will play as useful a part in surgery as the ethylates and "colloids" originally introduced by him. This is oxalic ether ($C_6H_{10}O_4$), a colorless liquid, sp. gr. 1.090, boiling at 183° C., having a pleasant odor, but a decidedly biting taste. It dissolves readily in alcohol and in ethylic ether; it is also soluble in water to the extent of four per cent., but after a time water decomposes it, alcohol and oxalic acid being formed. Potash and soda solutions convert it into alcohol and oxalates of the bases, whilst ammonia solutions convert into alcohol and oxamide. When administered hypodermically, oxalic ether is decomposed at the point where it is introduced, and acts there perhaps exclusively, the action being to coagulate the albuminoid structures, and to produce almost painlessly a free and dry eschar, without marked constitutional disturbance, unless used in excess. Dr. Richardson looks upon oxalic ether as a destroyer of tissue rather than a caustic, and believes it will prove of service in application either by the brush or by needle injection for the removal of morbid vascular growths. It is prepared by the action of oxalic acid upon absolute alcohol.

A solution of one drachm each of camphor and spermaceti in two fluidounces of rhigolene is recommended as useful when applied on cotton-wool to burns. The evaporation of the liquid is said to induce instant relief from pain, and there is left a thin film of camphor and spermaceti covering the injured surface. Dr. Richardson also calls attention to the much overlooked value of sponge as a poultice carrier, especially for mustard. After the mustard paste has been made of a smooth and even consistency, it should be taken up on a clean sponge, the sponge laid in the centre of a soft white cloth, the corners of which are tied, and the smooth convex side of the sponge is then applied to the surface of the skin. The mustard sponge, warmed again by the fire and slightly moistened, can be applied two or three times, and remains useful for several hours. The sponge can afterward be easily cleaned in warm water.

Hydrotherapy in Cerebral Rheumatism.—The following conclusions are embodied in a recent thesis by Dr. H. Dupré:

Hydrotherapy should be employed in cases of cerebral rheumatism with hyperpyrexia and delirium, with or without suppression of articular inflammation.

The state of the pulse, the temperature, and the nervous phenomena are the symptoms upon the presence of which treatment is instituted, and hesitation is not permissible in view of the danger to which the patient is exposed.

General baths are to be preferred to other methods of treatment. In acute cases the temperature of the bath may range between 88° and 68° F., usually beginning at the high temperature, which is slowly diminished by the addition of cold water to the bath.

No absolute contraindications of this method exist, but the possibility of resultant congestions, pneumonia, pleurisy, and syncope should be borne in mind.—*Revue de Thérapeutique*, January 15, 1886.

Maury's Ointment.—Under this name, an unctuous solid was first formulated and introduced into the Philadelphia Hospital, some eight years ago, by Dr. Maury, then a visiting physician of that institution, for the external healing treatment of sores, ulcers, etc., in general, and as especially serviceable in external affections of the skin dependent upon venereal origin. Since that time, in the medical practice of the hospital referred to, it has been constantly employed by the resident physicians, with a more than ordinarily uniform success.

The original formula contained simple cerate (Ceratum, U. S. P.) as the diluent, and not cosmoline, as hereafter mentioned:

R.—Nitrate of mercury ointment	. .	℥j.
Powdered rhubarb,		
Powdered opium	. . .	āā ʒss.
Cosmoline	. . .	q. s. ad ℥j.

Triturate the rhubarb and opium together with the cosmoline, until a perfectly smooth, homogeneous product is obtained. Then admix with it the citrine ointment, after having previously rubbed the same with about one fluidrachm of glycerin to remove any granulation present, using in the latter process a bone spatula.

The ointment, when freshly made with cosmoline as the diluent, is a soft, unctuous, greenish-brown solid, readily melting at the temperature of the body, and capable of being absorbed by the skin. It changes rapidly, on exposure to air, to a very deep brown color. The partial change of chemical nature, as evidenced by the change of color, does not appear to affect the medical qualities of the article in question, as every-day usage has fully demonstrated that the old ointment is as efficacious as the new.

Its mode of application is somewhat peculiar and worthy of especial mention. The part to which the ointment is to be applied must first be poulticed with a hot "Labarraque poultice," that is, a poultice of flaxseed meal, made with hot Labarraque's solution, instead of the hot water ordinarily used. After remaining on for awhile, the poultice is removed, and frequently takes with it portions of dead tissue. The skin is then carefully dried, the ointment spread upon soft lint and applied twice a day, or varying according to the severity of the case until the sore, is healed.—*Am. Journ. of Pharmacy*, Feb. 1886.

Chronic Chloroform Intoxication. — During thirty two days, Paul Bert daily induced chloroform intoxication of thirty minutes' duration in a fifteen pound dog. The narcosis was effected by the administration of 150 grains of chloroform in 24 gallons of air, and usually occurred in from ten to twelve minutes. At first the animal struggled actively against the inhalation, and exhibited a violent stage of excitement; but, as time went on, this stage gradually disappeared, as did also the resistance. On the twenty-sixth day the chloroform was withheld, and at the usual time of the experiments the dog began to whine "like an ætheromaniac deprived of his narcotic," and this condition continued during the entire night. From the third day of the experiment the dog ate but little, and from the twelfth day on he was markedly somnolent, but responded when called, and drank much. During the thirty-two days he lost fourteen per cent. in weight, and during the latter part of this period developed conjunctivitis and perforation of the cornea. Neither albumen, sugar, nor chloroform were at any time present in the urine. The animal died on the thirty-second day during narcotization, and an examination revealed fatty degeneration, most marked in the liver, heart, and kidneys.—*Centralb. f. klin. Med.*, January 2, 1886.

Preventive Inoculation of Yellow Fever.—According to the *Siglo Medico* of December 13, Dr. Meyrignac, of Panama, is inoculating for yellow fever, which is very prevalent among the workmen and employés of the Canal Company. Like Dr. Carmona, he employs the sediment of the urine of yellow fever patients, which contains the zoöspores of the peronospora lutea, and injects it, dissolved in distilled water, with a Pravaz's syringe. Three hundred Mexicans were inoculated before the epidemic of 1884, and not one has died. Inoculation is generally followed by an abortive attack of yellow fever, the symptoms being benign, slight, incomplete, and of short duration. This modified yellow fever seems to confer complete immunity from a second attack. The Government of Mexico has recommended the practice, despite the opposition of its medical advisers.—*London Medical Record*, January 15, 1886.

The Phosphorus Treatment of Rickets.—The following is a report by Dr. Boas on the treatment of rickets with phosphorus. Twenty cases of rickets of different degrees were treated in this way. Of these twenty children, twelve had the breast temporarily, only four somewhat longer than half a year, and eight were brought up by hand. As substitutes for the mother's milk, various kinds of infants' food were used —in one case Swiss milk. In six cases, the conditions of the dwellings were most unfavorable. The phosphorus was prescribed in daily doses of one to two teaspoonfuls of an emulsion of one centigramme (one-fifth of a grain) of phosphorus to 100 grammes (3½ ounces), during a period of from one to three months. At the same time, an appropriate diet was given. The effects of this treatment on the ossification and general functions were highly satisfactory. Twelve patients after three months' treatment were able to stand and to walk with comparative safety; in others the effects were less speedy, but an increasing firmness of the bones was evident. Dentition passed very favorably, without undue disturbances, notwithstanding the rapid succession of teeth. In one case of spasm of the glottis, improvement took place eight days after the commencement of the treatment. The general health of the patients was in every instance benefited. In two cases, injurious effects were observed in consequence of overdosing; instead of one to two teaspoonfuls of the emulsion, a dessertspoonful daily having been given by mistake. In one case after eight days' continued use of such large doses, want of appetite, pain, fever, and swelling of the inframaxillary region, with the characteristic signs of diffuse phlegmon, set in. The abscess was opened, after a fortnight's fomentations, by incision, and a teaspoonful of pus mixed with blood was discharged. The incipient phosphorus-periostitis was arrested, and the patient soon recovered. In the second case, a child (three years of age) had already taken five bottles of the emulsion, equal to five centigrammes (five-sixths of a grain) of phosphorus apparently without injury and with evident improvement of the general condition. Then, as in the first case, phosphorus-periostitis manifested itself; and, on opening the abscess, rough necrosed bone, denuded of its periosteum, was discovered by the probe. At the same time, the child complained of violent pain in the epiphyses of the hands, thighs, and legs; this patient also made a favorable recovery. In both of these cases, phosphorus mixed with saliva had entered into the open alveoli. In conclusion, Dr. Boas points out the beneficial influence of even minute increasing doses of phosphorus on the nutrition of the bones; but at the same time he enjoins great caution, lest overdosing may take place.—*The Practitioner*, February, 1886.

Amyl Nitrite as a Physiological Antidote in Cocaine Poisoning.—Schilling records a case of severe cocaine poisoning, in which, after the intragingival injection of two drops of a twenty per cent. solution of this drug, motion and sensation entirely disappeared. Complete amaurosis and deafness were present. The patient could swallow well, and called to her husband, who was absent, complaining of cold and darkness. Schilling, recognizing the condition as one due to contraction of the cerebral vessels, exhibited nitrite of amyl. The face of the patient immediately became suffused, and she cried, "Now it is light again." After three inhalations she was in condition to reply correctly to all questions, and soon after returned to her home.—*Centralb. f. d. gesammte Therap.*, Feb. 1886.

The Action of the Alkaline Metals and of the Alkaline Earths.—Curci finds that, in cold-blooded animals, potassium paralyzes first the nervous and muscular systems, and finally the heart. In mammals the heart is first affected.

Sodium first increases nervous and muscular excitability, producing convulsions, and tetanus of the respiratory muscles. Later appears paralysis, first of the brain, then of the cord, and finally of the heart.

Lithium induces the same phenomena as does sodium.

Calcium causes an anæsthesia, progressing centrally from the extremities, with cardiac paralysis when exhibited in very large doses.

Magnesium exerts effects very similar to those produced by calcium, except that the heart is affected much earlier.—*Centralb. f. klin. Med.*, Jan. 2, 1886.

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LAPAROTOMY IN WOUNDS INVOLVING THE INTESTINES.

IN the present number of THE MEDICAL NEWS we give the concluding portion of an interesting paper by PROF. DENNIS on "Laparotomy," the chief object of which is to recommend this operation in cases in which it is reasonable to suspect that a wound or injury of the wall of the abdomen is accompanied by perforation or rupture of the bowel. As we understand the author, he would have the abdomen opened for the purpose of diagnosis and of treatment much more frequently than has yet been common. It is well known that the extent of an injury inside of the cavity of the abdomen can at best be only suspected from the symptoms which follow it, and it would appear reasonable—now that exploratory openings in the abdomen can be made with such comparative safety—to give a patient with either a gunshot or stab wound of the abdomen what may be his only chance of recovery, by cutting down and learning the exact nature of the injury so as to apply the proper surgical remedy.

Prof. Dennis first discusses the applicability of laparotomy to stab wounds of the abdomen and argues for its frequent employment. In studying his argument it does not escape our attention that his own statistics do not furnish the fullest support to his views. However, we agree with his conclusions in regard to the treatment of these wounds. It is now a year since we expressed the opinion that stab wounds of the abdomen may often be regarded as properly subject to laparotomy. At that time we cited the successful case of Tiling, published in 1884, in which a stab wound of the stomach was treated by suturing, after laparotomy. This result is very encouraging. But the same can hardly be said of other reported cases in which the belly was opened, no visceral injury was found, and death followed. These suggest that we must not let our zeal outrun our discretion. Let the belly be opened without timidity, indeed, but also without temerity. Countless stab wounds of the abdomen have been followed by recovery, and many more may yet end as happily; so that the case is not to be thought so desperate as to warrant subjecting a patient to the real risks of laparotomy, except when there is more evidence that the bowel has been punctured than coldness, localized pain, and feeble and rapid pulse.

The case is somewhat different in regard to gunshot (or pistolshot) wounds, for these are so usually fatal that the faintest suspicion of injury of the intestine would seem to justify laparotomy. The opinion of Otis, that gunshot wounds of the small intestine are invariably fatal if left to themselves, has never been discredited, even in the case reported by Dr. Andrews, of Chicago, in which a pistolball, shot into the abdomen above the navel, was passed from the anus a week later; for there is nothing to show that it went into the small intestine. The rule is that gunshot wounds involving the bowel will cause death unless surgical interference averts the catastrophe, and any other result is as rare as it is fortunate. It is further highly probable that any gunshot wound of the abdomen will involve the bowel, and these facts constitute a warrant for surgical interference which is strongly supported by the successful operations already reported, and which is not at all impaired by the operations which have failed to save the patient's life.

In regard to opening the belly after the infliction of violent blows upon it, or after the passage over it of the wheels of vehicles, followed by symptoms of laceration or bursting of the bowel, we think the greatest caution should be exercised, and the cases cited by Prof. Dennis lead us to this conviction. On the whole, we think no more can be said than that it may be regarded as justifiable to operate in a case in which there is not a very strong probability that the injury would prove fatal without respect to any rupture of the intestine.

In conclusion, we would reassert the opinion expressed a year ago in these columns, in regard to the entire class of injuries of the abdomen in which the bowel may have been pierced or ruptured: that active interference may, and should, be instituted much oftener than it is. We cordially commend the conclusions of Prof. Dennis, with the arguments on which they rest, to the thoughtful consideration of our readers.

FOOD INSPECTION.

THE supervision of the food supplies of the people is one of the most important obligations of a munici-

pality. While the price and the quality in a measure must be left to the ordinary operations of trade, the law should intervene to prevent adulterations, and the manufacture and sale of any articles intended for human consumption that are injurious to health. In order to carry out this object the law should define what is meant by adulteration in its various forms, and designate what is unwholesome food, and advise the course of procedure in condemning, withdrawing from the market, and disposing of any "diseased, or unsound, or unwholesome food, or food unfit for the use of man."

The organization necessary for administering such regulations, as well as many other measures connected with the preservation of the public health, already exists in many States in the form of a State Board of Health. Already in several instances the powers of State Boards have been enlarged so as to include the supervision of food supplies. By vesting authority in a central board it is not intended to relieve local boards of the responsibility of supervising food of a perishable character, such as meat, fish, game, vegetables, etc., which require daily inspection; but on the contrary to lend a moral support, and furnish a means of coöperation in effecting a common purpose.

While the main object of legislation against adulteration is the protection of the public health, it yields a further advantage by its economic results. This fact is prominently set forth in connection with the administration of the Massachusetts food-inspection law. Of the articles liable to adulteration, such as milk, butter, spices, vinegar, cream of tartar, and some drugs, consumed in 1884, of the value of $15,000,000, five per cent., or $750,000, were saved to consumers through the enforcement of the act.

In most European countries, laws both general and municipal have long been in existence, which regulate the manufacture or sale of articles of food. In this country most States have statutes relating to special articles of food. Some of them have a purely commercial object; others are intended for the protection of the public health. Beyond enacting a law prohibiting the importation of damaged and adulterated tea, which has been productive of good results, the National Government has done little to insure the purity of food. The bill of Senator Edmunds recently introduced in the United States Senate is intended to supply this deficiency. The passage of the bill and the strict enforcement of the law thus enacted will go far toward securing the purity of staple articles of food, and in establishing the reputation of our products in foreign markets, and as a consequence will be very beneficial to our export trade.

Among the States in which the importance of food inspection has been recognized may be mentioned Massachusetts, New York, and New Jersey. They have recently adopted carefully prepared laws for the prevention of the adulteration of food and drugs. These laws have been engrafted upon those of the State Board of Health. One of their objects is the protection of trade by preventing adulterations; but the vital purpose is to take cognizance of adulterations which are injurious to health, and to prevent the sale of deleterious articles of food.

For the execution of the law the appointment of inspectors and analysts is necessary. Test offices should also be established and provided with the necessary apparatus for the chemical and microscopical examination of all articles submitted by the inspectors, and also by the public, as everyone should have the privilege of ascertaining the composition of any suspected article of food.

Adulteration has been applied to a great variety of foods, beverages, and drugs, but the practice is common in only a comparatively small number of articles, and to these special attention should be directed. Chief among these are milk, butter, cheese, spices, vinegar, sugar, ground coffee, tea, oils for consumption, cream of tartar, spirits, and various sorts of drugs. Meats, fish, and vegetables, and other perishable articles, will require constant supervision. The examination of the flesh of animals should be specially critical. Provision should be made for examining all cattle immediately before killing, and for inspecting the meat before it is exposed for sale in the markets. If all slaughter-houses were placed under sanitary control, and the business of slaughtering concentrated in abattoirs, this work would be rendered practicable and efficient.

It is the practice in London to condemn the flesh of animals infected with certain parasites, as the *trichina* in pork, the *cysticerci* in pork and beef, and *flukes*, which infest the livers of animals; that of animals suffering from fever or acute inflammatory diseases, as rinderpest, pleuro-pneumonia, and the fever of parturition; that of animals wasted by lingering sickness, such as phthisis; that of animals which have died from accident or from natural causes; and also all meat that is tainted or that is sufficiently decomposed to be discolored or to have a putrid smell. The flesh of animals that have been exhausted, excited, or tortured before death has frequently been found to be unwholesome.

Under certain conditions sausages are a most dangerous food on account of a virulent poison which is produced by a sort of modified putrefaction. Poisonous effects are generally observed in connection with sausages which are mouldy and soft in the interior, and which emit a strong-smelling odor. Other kinds of animal food when in a decayed or mouldy condition may occasionally produce similar

effects. Fish, poultry, and game must be examined for signs of decomposition.

Fruit and vegetables must be objected to mainly on account of advanced decomposition. Mouldy food of all kinds is dangerous and should be condemned. The testing of canned goods for poisonous substances, and the examination of various articles of food requiring analysis must be performed in the laboratory, the duty of the inspector being confined to procuring samples of suspicious articles for investigation.

A uniform law in all the States, covering the subjects above suggested, would have a powerful effect in ridding the market of spurious and unwholesome articles of food. The purposes of the law could be secured by notification and warning, and by prosecutions and penalties, and in some cases by confiscation of the condemned articles.

DREAMS.

In a recent article upon dreams, we referred to the views that Wundt holds upon the subject. A consideration of sleep in regard to its etiology precedes that of dreaming. Wundt regards it as certain that sleep belongs to periodical biologic processes, and consequently its most intimate source or origin is to be sought in the central nervous system. As to where the hypothetical centre of sleep is located, we do not know; nevertheless, according to the normal conditions of sleep we must admit that this centre is none other than the organ of aperception itself. Aperception, of course, will not be confounded with perception by the reader. Perception is the simple cognizance of a sense impression—it is a message received at the central office; but in aperception consciousness or reflection is exercised—the message is not only received, but read and understood. The phenomena which appear as a consequence of sleep prove that from the aperception centre the effects emanate which involve the entire central nervous system, presenting the distinct character of effects of arrest. They are manifested by the depression of cardiac and respiratory movements, by lessening of all the secretions, and diminution of reflex excitability; the psychophysical side of these central arrests consists in this, that exterior irritants of moderate energy cannot be perceived, especially cannot be subjected to aperception, and that probably in their turn the reproductions also gradually disappear.

The profoundness of sleep can in some degree be judged by the energy of the irritant necessary to awaken the sleeper. It is proved by experiment that sleep is most profound shortly after it begins; and that it then is replaced by drowsiness. At first, sleep is probably in most cases a state of complete absence of consciousness, such as occurs in syncope, which appears to be only sleep occurring in abnormal circumstances. The arrest of central functions which causes the beginning of sleep, determines besides a series of secondary alterations, which may also be considered the effects as well as the partial phenomena of sleep. Very probably these alterations have as their intimate origin the arrest of the innervation of the vasomotors, and of that of respiration, because all the consecutive phenomena are notably increased by disturbance of respiration. It is probable, too, that arrest of the two nervous centres produces disturbance in the circulation, and also a similar condition in the alternative exchange of materials in the brain.

While new researches are necessary for the determination of some of these points, we can conceive that there will be developed by the conditions that have been mentioned states of irritation which during sleep triumph over the existing arrests, thus suppressing the state of complete absence of consciousness in order to produce in its place a consciousness modified by the particular conditions in the midst of which it is manifested. This modified consciousness is the condition of dreaming. "Since in dreaming representations are reproduced and sensorial impressions are made objects of perception and subjects of aperception, the functions of consciousness appear reëstablished in the dream." The consciousness is modified in two respects: first, the reproduced representations have the character of hallucinations; and, second, the aperception is so changed that the appreciation of facts of memory shows essential alterations.

Wundt regards most of dream representations as really illusions, since they emanate from sensorial impressions which, though weak, continue during sleep. An inconvenient position taken by the sleeper causes the representation of painful work, perilous ascent of a mountain, etc. A slight intercostal pain becomes the point of an enemy's dagger, or the bite of an enraged dog. Difficulty in respiration is fearful agony caused by nightmare, the nightmare seeming to be a weight rolled upon the chest, or a horrible monster which threatens to stifle the sleeper. An involuntary extension of the foot is a fall from the dizzy height of a tower. Flying is suggested by the rhythmic movements of respiration. Further, "those subjective visual and auditory sensations which are represented in the waking state as a luminous chaos of an obscure visual field, by humming and roaring in the ears, and especially subjective retinal sensations, have an essential *rôle*," according to Wundt. "There are shown to us innumerable birds, butterflies, fish, multicolored pearls, flowers, etc." But if there be some cutaneous irritation, these visions are usually changed into caterpillars or beetles crawling over the skin of the sleeper.

The sleeper sometimes dreams of his appearing on the street, or in society, only half dressed; the

innocent cause is found in some of the bedclothes having fallen off. Wundt quotes from Scherer the statement that those dreams characterized by the presence of water, usually result from the sleeper's bladder being full, and the pressing need of urinating. "Sometimes he sees wells open before him; sometimes he is upon a bridge, and is looking down upon the water, or, perhaps, in virtue of an entirely natural association, sees floating in every direction a vast number of pigs' bladders." An inconvenient position of the sleeper, a slight hindrance to respiration, or interference with the action of the heart, may be the cause of dreams where one seeks an object without being able to find it, or has forgotten something in starting upon a journey. The movements of respiration may suggest to the sleeper, as previously mentioned, flying, but this flight may be objective, and instead of himself flying, he sees an angel descending from the heavens, or a luminous chaos where birds are swiftly moving.

The representations of dreams having sensorial origin may have mingled with them those which arise solely from the reproduction of past memories. Thus parents or friends cut off in the flower of life, ordinarily appear in dreams because of the profound impression which their death or burial has made; "hence the general belief that the dead continue during the night their intercourse with the living."

THE FORMATION OF A NATIONAL SOCIETY FOR CLINICAL MEDICINE.

In view of the unquestionable advantages which have followed the organization of special societies in the different departments of medicine, we are informed that it has been determined to organize a society devoted to the interests of clinical medicine and pathology. Preliminary meetings have been held in New York during the winter, at which the project was thoroughly discussed, and favorably considered. A preliminary organization was effected on December 29, 1885, and a committee, consisting of Drs. Francis Minot, of Boston, Wm. H. Draper, of New York, William Pepper, of Philadelphia, R. Palmer Howard, of Montreal, Alfred L. Loomis, of New York, William H. Welch, of Baltimore, Francis Delafield, of New York, and James Tyson, of Philadelphia, were appointed to notify those who were chosen for original members of their election, and to make the necessary arrangements for the first meeting, which is to be held in Washington on June 16th and 17th.

By the formation of this Association, each of the natural divisions or specialties of medicine will now be represented in this country by a special society. This new organization enters upon a wide field of usefulness and begins its career under the most promising auspices.

SOCIETY PROCEEDINGS.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, February 15, 1886.

The President, C. A. Leale, M.D., in the Chair.

Dr. Frederic S. Dennis read a paper on

LAPAROTOMY IN THE TREATMENT OF PENETRATING WOUNDS AND VISCERAL INJURIES OF THE ABDOMEN.

(See pages 225 and 253.)

Dr. Joseph D. Bryant said that he had listened with much interest and great individual benefit, to the paper of Dr. Dennis. On account of the expression of his views on previous occasions, it was hardly necessary to say that he was in favor of laparotomy; but it was pertinent to ask, What is laparotomy in the sense in which it presents itself to the profession? There are two distinct forms of the operation: First, exploratory laparotomy; and, second, laparotomy in its entirety. Having given the definitions of these two operations, Dr. Bryant remarked that it is a common custom to characterize as laparotomy the simple exploratory incision.

This operation, he said, he would employ far more frequently than is at present the case; believing, as he does, that when performed under proper conditions it exposes the patient to no unusual danger. In illustration, he referred to Lawson Tait's wonderful success in opening the peritoneal cavity. Exploratory laparotomy is a justifiable operation. It is perfectly simple and easy to open the abdomen; but when it comes to making a thorough examination of the various viscera, arresting hemorrhage at all bleeding points, suturing the intestines, and performing the toilet of the peritoneal cavity, it is a very different matter. This is a procedure which requires a long time—from one hour to two or three. Dr. Bryant said that he called attention to this point in order that the gravity of the operation of laparotomy in its entirety might be fully understood. It is certainly one, therefore, which is attended with a very considerable amount of danger.

Whether shock is present or not, it is justifiable to perform exploratory laparotomy. Whether the exploratory incision is to be made in the median line or not, depends on the direction of the violence producing the wound. If this is toward the median line, the incision may be made in the latter; but if the direction is from the median line, the incision is to be made at the seat of the external wound.

As to the rate of mortality when there is a protrusion of a viscus through the abdominal wound, he has found that statistics show that from 25 to 30 per cent. of all cases recover when the intestine, or other part, has been sutured and returned to the abdominal cavity, and the external wound closed. In penetrating gunshot wounds of the abdomen, treated on the expectant plan, the statistics of the Crimean war show that 7½ per cent. of the cases recovered.

It was remarkable, Dr. Bryant continued, how gradually laparotomy had been led up to, from the days of Fallopius, in the seventeenth century. He then said that he would not consider as a case of laparotomy in its

entirety, one in which there were found no injuries of the intestines or other viscera. If this were the case, it was merely an exploratory laparotomy.

Speaking of symptoms, he said in regard to shock, that it is a principle pretty well established that penetrating gunshot wounds of the abdomen, provided they do not cause hemorrhage or the injury of nerve trunks, are not followed by much shock. Severe shock and subnormal temperature generally indicate hemorrhage. Therefore, as Dr. Dennis had remarked, severe shock is no contraindication for laparotomy.

In all cases in performing this operation it is necessary that the surgeon should surround himself with all the conditions which will tend to afford the patient the best possible chance of recovery. Dr. Bryant said, in conclusion, that there was one fact about which there was no doubt, and that was, that hemorrhage is a very important symptom, and that it is absolutely necessary that every bleeding point should be satisfactorily secured. Not infrequently the slightest oozing becomes changed to profuse hemorrhage as soon as the abdominal contents are returned to their places, and the cavity closed up. Experiments which he had made on dogs (shooting them in the abdomen, and then performing laparotomy) had further convinced him of the extreme importance of hemorrhage in gunshot wounds of the abdominal cavity.

Dr. E. G. Janeway said that the absence of hepatic dulness is a good general guide as to the existence of perforation of the intestines; but there are a certain number of cases which simulate this condition. Thus, in a case of typhoid fever under his observation, in which, on account of this symptom, perforation was supposed to have taken place, it was found at the autopsy that the resonance over the hepatic region was not due to this cause, but to the tilting of the liver. In regard to the operation of laparotomy, one possibility had occurred to him. Eberth, in his experiments on dogs, had found that by immersing the abdomen in a serum bath of 98° thrombosis and peritonitis could be prevented. Possibly, therefore, it might be advisable to operate on human subjects in the same way. It would hardly be safe to use bichloride of mercury as the antiseptic under the circumstances, but a warm saline solution might be employed for the bath.

Dr. J. W. S. Gouley said that he believed that the views expressed this evening were sound. The operation of laparotomy is justifiable when we have reason to believe that the hollow viscera have been injured. He then related two cases which had come under his own observation. The first was that of a young soldier twenty-two years ago, who suffered from a bayonet wound which passed completely through his body. It was not clear what organs had been injured in its course; but nothing was done, and the patient got well without a bad symptom.

The second case was one in which there was a pistol-shot wound which also passed completely through the body. It injured the right lobe of the liver and the lower lobe of the right lung; and bile, mingled with the pus, flowed freely out of both openings. In this case, also, recovery took place under the expectant plan of treatment. During the war he had, in fact, seen several cases which resulted successfully in a similar manner. At the same time, if he were to meet with such cases to-day, he did not hesitate to say that he should prepare himself to open the abdomen.

Dr. H. M. Biggs said that, in regard to the loss of liver dulness, he had met with a case which showed that this could not be relied upon as an infallible sign of perforation. The patient was suffering from peritonitis, and when the absence of hepatic dulness was detected, it was naturally supposed that perforation had occurred. There was no operation, and the patient died, when it was found at the autopsy that the cause of the resonance in the hepatic region was the fact that the intestines had forced themselves between the liver and the abdominal walls, and that no perforation had taken place.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, February 15, 1886.

The President, Samuel Nickles, M.D., in the Chair.

DIURETIC MEDICINES.

Dr. S. Nickles, in introducing the discussion of this subject, gave a brief description of the physiological action of the kidneys, sufficient to illustrate the mode of action of diuretics, as far as this has been ascertained. Some diuretics, he said, do not increase the secretion of urine in the normal state of the organism; but in certain forms of dropsy, especially those dependent upon heart disease, they display very remarkable power, often in a few days causing a very copious flow of limpid urine. On account of the abundance of the urine, they have been called hydragogue diuretics. It has been shown by experimental investigations that all such diuretics, in moderate doses, cause a more vigorous action of the heart, in consequence of which the blood-pressure becomes increased. Usually as soon as the blood-pressure approaches the normal, the urine increases. Hence their action is due not to any special influence on the secreting structures of the kidney, but to the increased general blood-pressure, which augments the velocity of the blood-flow in the kidneys. At the present time they are called indirect diuretics. They are indicated in all cases of dropsy in which the general blood-pressure is abnormally low, which is always the case in cardiac dropsy. They are contraindicated in all cases in which the blood-pressure is abnormally high, or in which the pulse is hard and tense. To this group of diuretics belong digitalis, squills, caffeine, apocynum, convallaria, adonis, and several others.

From the indirect diuretics must be carefully distinguished those medicines which increase the urine by a direct influence upon the secreting structures of the kidney—the direct diuretics. These augment the quantity of urine in healthy persons, although they cannot then produce a very abundant flow of urine. In certain forms of dropsy, however, they often cause a copious secretion. The action of these diuretics is attended by hyperæmia of the kidney. This was shown in certain experiments by Cohnheim and Roy, in which they injected urinary substances into the vascular system and carefully noted the changes produced in the volume of the kidneys. Uniformly the size of the kidneys became increased, showing an augmented quantity of blood in

the renal vessels. No increase of the blood-pressure in general resulted, and hence the dilatation of the arterioles of the kidneys was due to the greatly increased activitity of the renal epithelium, excited by the presence in the renal blood of urinary substances.

The hyperæmia produced by direct diuretics may become excessive, if very large doses are used. Thus oil of turpentine, copaiba, cubeb, cantharides, and others, may cause a very scanty flow of albuminous and bloody urine. Doubtless the flow of blood in the renal vessels becomes greatly retarded, and then, in consequence of nutritive changes of the epithelium and capillaries, other constituents of the blood, besides water, urea, uric acid, escape through the damaged structures.

The direct diuretics are contraindicated in all inflammatory diseases of the kidneys. They may be used in any form of dropsy, if the kidneys are healthy; but in cardiac dropsy are usually inefficient unless combined with the indirect diuretics. In some forms of kidney disorder the direct diuretics are effectual remedies; thus it is often observed that hæmaturia is quickly arrested by minute doses of oil of turpentine. On account of the severe disorder of the renal circulation which follows large doses of oil of turpentine, cubeb, copaiba, and cantharides, these remedies have been called stimulant or irritant diuretics. In diseases of the mucous membrane of the urinary passages produced by low organisms, copaiba, cubeb, and oil of turpentine are of decided utility. They render the urine aseptic, so that it does not easily undergo putrefaction. Hence it is supposed that their utility in catarrhal affections, and especially in gonorrhœa, is to some extent due to a destructive influence on the low organisms, and they have therefore been called antiseptic diuretics.

Not all the direct diuretics, when given in large doses, produce irritation of the kidneys. The saline diuretics, especially the acetate, citrate, and bitartrate of potassium, may be given in very large doses, especially if they are dissolved in much water. The action of all these salts is the same upon the kidney, which is readily accounted for by the fact that they are all converted into the carbonate of potassium in the blood. They are supposed to exert some effect upon the circulation and temperature in febrile diseases, and hence have been styled refrigerant diuretics.

Dr. Nickles did not propose to discuss the action of the special members of the groups of diuretics, or to point out the special indications for their therapeutic use; but he desired to call attention to a medicine, which, as yet, is little employed, but is of great utility in some forms of dropsy—namely, the resin of copaiba. Numerous careful observers have found that it often exerts a very decided diuretic action in cases of ascites, in which other diuretics are not usually very efficient. In a case of moderate ascites with œdema of the lower extremities, occurring in a patient with enlarged liver and jaundice, who had become very anæmic from profuse hæmatemesis, the resin of copaiba, in doses of about eight grains three times a day, in several days greatly increased the flow of urine, and in about two weeks caused the absorption of all the serum which had accumulated in the areolar tissue and peritoneal cavity.

DR. A. RAVOGLI called attention to the very important part the nervous system plays in the mechanism of this function. Some time ago he took part in a course of experiments on this subject. A large dog was curarized, the abdomen was opened and the ureters divided, and tubes inserted so as to collect the urine as it passed out. Acetate of potassium was then injected into the circulation. The flow of urine rapidly increased. Shortly after this the minor sympathetic nerve was cut. As a consequence the urine again rapidly increased in flow, so that it no longer dropped from the orifices of the tubes, but escaped in a small stream. The current from an electric battery was then passed through the divided ends of the nerve and the flow of the secretion was at once checked. When the battery was removed the urine again increased. This, the speaker believed, demonstrated the controlling influence of the sympathetic over the secretion of urine.

It is now know that albuminuria is sometimes present in cases in which there is no lesion of kidney structure. This is illustrated in the albuminuria of pregnancy. The balsam of copaiba acts largely upon the lesser sympathetic nerve, controlling the vasomotor circulation. This is shown by the fact that eruptions frequently follow its use. Such eruptions are the result, not of the irritant action of copaiba on the gastric mucous membrane, but of its action on the vasomotor nerves. While the balsam of copaiba is capable of producing this irritant action on the stomach, it manifests its action on other nerves also, and it is through its action on the splanchnics that it has its diuretic action.

DR. J. L. CLEVELAND reported a case illustrative of the proper use of the indirect diuretics in which the result was admirable. A patient had recently come to his office suffering from an aggravated attack of asthma, breathing with great difficulty; his lower limbs were œdematous, and the action of the heart was tumultuous. After he had examined the patient, he felt that he had a very unfavorable case before him and made a guarded prognosis. After a walk of only a few squares, the heart's action was so tumultuous as entirely to mask the valve sounds. He prescribed $\frac{1}{100}$ grain doses of digitalin. The next day, when he called on his patient he was astonished at the rapidity with which the remedy had acted. The heart had been toned up, its action was regular, its sounds distinct and a large amount of urine had been passed. The breathing was much more easy, and in a few days, with no other remedy, the trouble entirely disappeared. In proper cases there is hardly a remedy which will act with so great certainty.

DR. J. G. HYNDMAN did not believe that we can have an albuminuria without a lesion of the kidney. There are cases of albuminuria which are produced as a result of outside influences, as in the albuminuria of pregnancy referred to. In these cases the albuminuria is due to the pressure of the uterus or some of its appendages on the bloodvessels of the kidney, causing in it a passive hyperæmia, but it does not occur without alteration of kidney elements. A proof of this view with regard to the production of this form of albuminuria is seen in the numerous experiments that have been made, as by the ligation of the renal veins.

DR. RAVOGLI replied that his remark with reference to the albuminuria of pregnancy had been made in order to illustrate the fact that the occurrence of albuminuria does not of necessity imply the existence of a renal or cardiac disease. Of course, the albuminuria of preg-

nancy is a result of pressure, and consequent retardation of the blood-current, just as it is in the ligation of the renal veins.

Dr. R. W. Stewart raised the question whether the albuminuria of pregnancy is due to the pressure of the gravid uterus or whether there is not in reality a preëxisting disease of the kidneys in all these cases. It is a peculiar fact, he said, that albuminuria occurs in only certain cases of pregnancy and not in all, as it might be expected to do if it were the result of pressure.

Dr. Thad. A. Reamy stated that he had no doubt that albuminuria in a large number of cases is due to pressure. The fact of its occurring in only a certain proportion of cases can be accounted for by the fact that the pressure is not the same in degree in all cases of pregnancy. He added that he had recently seen cases of albuminuria in pregnant women cured within a few days by the administration of the muriated tincture of iron and the milk diet. Nowhere, however, have we a better illustration of the proper use of the indirect diuretics than in cardiac asthma, as in the case reported by Dr. Cleveland.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, February 19, 1886.

The President, T. G. Roddick, M.D., in the Chair.

UTERINE FIBROID.

Dr. Trenholme exhibited a large uterine fibroid which he had removed the previous week from a woman aged thirty-three. Patient, who was married and had borne children, had suffered from symptoms of fibroid for some sixteen years, and as the hemorrhages were becoming more severe had requested that an operation should be performed. Dr. Trenholme consented and performed the operation. The tumor was encircled by a wire écraseur one inch above the os uteri and removed; there was considerable hemorrhage which was difficult to control. The patient never rallied from the operation, but died seven hours after from shock.

SARCOMA OF SPLEEN IN A DOG.

Dr. Wyatt Johnston exhibited a specimen of angeio-sarcoma removed from a dog. The tumor weighed four pounds and was continuous with the upper end of the spleen substance. The dog suffered from abdominal dropsy, for which he was tapped, and died of peritonitis a few days subsequently.

LARGE URINARY CALCULUS.

The President presented a large uric acid calculus which he had recently removed from a man aged sixty-nine, by the lateral operation. The stone weighed three and one-quarter ounces. The patient had suffered from symptoms of stone for five years, and had been frequently sounded without result. The man recovered from the operation without a bad symptom.

DERMOID CYST.

Dr. Wm. Gardner presented two specimens, and briefly narrated the cases:

Case I. *Dermoid cyst containing a bunch of hair, two well-formed incisor teeth and one bicuspid tooth attached to a piece of bone, also a fourth tooth in another part of the cyst wall.*—The fluid contents contained a large quantity of fat, and on cooling looked like drippings of meat. The other ovary was an aggregation of cysts and was also removed. The patient, an unmarried lady of thirty, had noticed the tumor for only four months; she had had several attacks of pelvic pain in the side on which was the tumor. She made a rapid and easy recovery, leaving for home on the eighteenth day.

Case II. *Tait's operation.*—Uterine appendages removed from a case of uterine myoma. Both ovaries consisted of a mass of smooth cysts and were three times the normal size. The tubes were healthy. The myoma was as large as a child's head. The patient had been married three years and had never been pregnant. She was much blanched by hemorrhage and watery discharges which had lasted for five years. She had suffered from fever, abdominal distention, and profuse metrostaxis after the operation, but at the date of the meeting (eleventh day) was doing perfectly well.

MALIGNANT STRICTURE OF THE ŒSOPHAGUS.

Dr. George Ross showed a specimen of cancer of the œsophagus, the following being the principal facts in the clinical history: A man æt. fifty-four, six feet four inches high, and who had been immensely powerful, was admitted into the hospital with intense dysphagia and in a state of great emaciation and weakness. There was an intense fetor of breath, and he had had a severe cough for some time with a copious similarly fetid purulent expectoration. He was intemperate and was in the habit of drinking raw spirits. The difficulty of swallowing had gradually developed during more than a year, until of late even fluids were forced down with the greatest difficulty and straining. There had never been any vomiting or regurgitation of food. An œsophageal bougie of soft, flexible rubber and of almost the largest size, was twice passed its full length without meeting with any special obstruction. It slid down with ease and not the slightest force was used. The withdrawal of the bougie was followed by the escape of horribly foul air from the patient's mouth, and the instrument itself was smeared with stinking pus. Physical examination of the chest gave signs of cavity in left apex and of softening deposit with cavity localized in right mammary region. He rapidly became enfeebled and died in about a month from asthenia, continuing to the end to swallow a large quantity of fluids every day, and there was never seen any regurgitation. The diagnosis had been epithelioma of the œsophagus involving the tube in such a way as to produce all the phenomena of stenosis and yet permit of considerable patency of the lumen; secondary cancer of the lungs with gangrene. The autopsy showed an epithelioma of unusually firm texture situated just below the level of the cricoid cartilages and extending for about two inches. It encircled the œsophagus and the stricture was almost impermeable. It was only after repeated efforts that a No. 2 flexible (urethral) catheter could be insinuated through it. In the apex of the left lung was a large cavity containing a considerable slough lying loose within it—the chamber was excessively fetid. The upper part of the lung was firmly adherent to the diseased portion of the œsophagus, but *no communication* could be shown between the pharynx and the apex-

cavity. In the front of the right lung was a mass of cancer which had softened centrally.

Dr. Ross directed attention to some points of the case. He thought the disease might here have originated from the habit of drinking copiously of raw spirits. The absence of all regurgitation was a remarkable feature, considering the high situation of the growth and the tightness of the stricture. He also asked the question: "What course was taken by the bougie?" The tight, firmly organized stricture must have existed for a long time; such a large instrument could not possibly have passed through within two or three weeks of the man's death. The bougie was too large, the space too narrow, and the stricture too high for it to have bent upon itself. Could it have passed into the cavity in the apex of the lung? If so, there must have existed a direct and free communication with this part from the pharynx, which avenue had been subsequently shut off by adhesive inflammation. Except on the latter hypothesis, he was at a loss to explain the facts given above.

MALIGNANT DISEASE OF RECTUM TREATED BY EXCISION AND COLOTOMY.

Dr. George E. Fenwick read a paper on the operative treatment of malignant disease of the rectum, with cases. He began by remarking that the origin of cancer is still an unsolved mystery. He said that some look upon cancer as being at first a local disease, produced by long-continued irritation or accidental injury. The disease begins at one point while the rest of the body is apparently healthy. They believe that the constitutional implication is secondary to the local disease, as cancer first spreads by infiltration of the structures in its immediate neighborhood, and when the lymphatics are involved is distributed to all parts of the body. Others, again, assert that certain people are predisposed to cancer, and that without the predisposition no amount of local injury or irritation will produce this disease.

Dr. Fenwick thought that in many cases the disease was of purely local origin, but that in some there was an hereditary predisposition. He regarded it as more than a mere coincidence that many members of the same family are occasionally affected, and that it may show itself in several generations. He held, however, that if it could be shown that cancer could be arrested by early surgical removal without subsequent recurrence, the position of the localists would be much strengthened. If there is a time when cancer is purely local, the necessity for early surgical interference becomes imperative. Although recurrence is the rule after the extirpation of cancerous growths, still cases do occasionally occur in which no recurrence is observed, and some of the cases related by the reader of the paper bore evidence to the truth of this statement.

Cancer of the rectum arises in a very insidious manner, and in many cases it is almost impossible to obtain a correct clinical history regarding the length of time the disease has existed. The earliest symptoms are, smarting, itching, and general discomfort about the rectum, after defecation and exercise there is a dull aching pain more or less constant. The patient's rest is broken and his general health in consequence suffers. As the disease advances defecation becomes more difficult and painful, the bowel is never properly emptied, and blood is frequently passed. If not relieved by operation, the patient rapidly fails and dies of exhaustion. The duration of the disease is from eight months to three or four years. Dr. Fenwick went on to remark that if the disease is low down, early extirpation should be practised, and that as one could get above the seat of the disease, excision should be performed in preference to the palliative operation of colotomy. The operation of excision, though often difficult, was not dangerous, and often relieves the patient for years. In women the operation is much easier than in men on account of the roominess of the pelvis and the presence of the vagina, enabling the operator more easily to reach the disease. In most of the cases he had sacrificed the external spincter, but after a time the patient had considerable retentive power. In his last case he preserved the external sphincter, with benefit to the patient.

Case I. *Excision of rectum.*—Patient a woman, æt. fifty-eight, who had a cancerous ulcer near the external sphincter, about the size of a half-dollar. The disease had existed several months. The spincter was involved. No enlarged glands could be made out. Excision advised and operation performed in May, 1876. A circular incision was made round lower end of bowel, at some distance from edge of growth, and the lower two inches of the bowel dissected away. There was considerable hemorrhage and the vessels were tied separately. The bowel was removed with the knife. Patient had no recurrence and died some three years ago.

Case II. *Colotomy.*—Girl, æt. twelve, came to hospital January, 1876, for what was thought to be syphilitic disease of rectum. Nodular condition of bowel as far as finger could reach. Antisyphilitic treatment of no avail. The disease increased and the nodules became ulcerated. The bowel becoming much obstructed, lumbar colotomy was performed with great relief to patient. The patient recovered well from the operation, left the hospital in a few weeks, and was lost sight of.

Case III. *Colotomy.*—Mr. L. æt. sixty-two, French Canadian, admitted to hospital Nov. 7, 1877. Had for years suffered from piles, for which he had been treated some twelve years before by the application of nitric acid. About end of previous June began to have pain in the rectum, which was greatly increased on going to stool. Defecation had lately become difficult and relief could only be obtained by tepid water injections. On examination a huge growth was found obstructing the bowel near its lower end, the finger could not be passed above it. Lumbar colotomy performed. Easy and rapid recovery; patient much relieved, and lived in comparative comfort till the following June, eight months.

Case IV. *Excision of rectum.*—Mrs. N., seventy years of age, consulted Dr. Fenwick for what she supposed to be dysentery. She had great tenesmus and a large mass of the bowel protruded. On examination a cancerous mass was seen involving the entire circumference of the anus and extending up the anterior wall of the bowel for some two inches. As the finger could easily reach above the mass, excision was advised. The operation was performed August 6, 1878. Three and a half inches of the bowel were removed, together with the external sphincter. The patient made a good recovery. This old lady died on April 10th of last

year (1885), having lived six years after the excision. The cancer never returned; patient died of some heart affection.

Case V. *Excision of rectum.*—Mr. A., farmer, æt. fifty-six, consulted Dr. Fenwick, Jan. 1880, for what he supposed to be piles. Had suffered for the last five months. On examination a cancerous mass was found a little above the anus, extending completely round the bowel, more of the mass being in the anterior portion. The finger could easily be passed beyond the disease. Operation January 22, 1880. Nearly four inches of bowel removed. On separating the bowel from the tissue of the bladder, the right vas deferens was cut. There was not a great deal of hemorrhage. The external sphincter was removed. After cutting away the diseased bowel the healthy bowel was brought down and stitched to the anus. In both these last cases the posterior wall of the bowel was incised as far back as the coccyx before removal. The patient rapidly recovered and lived in comparative comfort for three years, when the disease returned high up and patient became rapidly emaciated and died.

Case VI. *Excision of rectum.*—Man, æt. sixty, admitted to hospital June, 1882, with cancer of anterior wall of rectum a little above the anus. Excision performed, but great difficulty was experienced in separating the bowel from the prostate gland and bladder, which were found to be involved in the disease. A portion of the bladder was removed with the bowel. The patient died of exhaustion four days after the operation.

Case VII. *Excision of rectum, and colotomy.*—Man, æt. forty-five, consulted Dr. Fenwick in November, 1883, for a bleeding tumor of the rectum. He had for several years suffered from "rectal disease," which was thought to be piles, for which he had taken all the advertised quack remedies. On examination a fungoid mass with a hard base was found in the posterior wall of the rectum. It extended up the bowel a couple of inches and involved almost one-third of the circumference of the gut. Excision advised and the operation performed November, 1883. There was considerable hemorrhage and the bowel was ligatured before removal. The patient's recovery, owing to loss of blood, was slow. The tumor was examined by Dr. Osler and pronounced to be a well-marked case of villous tumor. Patient did well for about a year, when he began to have considerable trouble with his bowels—had great difficulty in relieving himself. On examining him it was found that the disease had returned and was now distinctly epitheliomatous. Excision was again advised, and another operation performed in January, 1885. About four inches of the bowel were removed and some glands which were involved. The patient recovered rapidly and returned to his business, but the disease again returned higher up, and symptoms of obstruction appearing, colotomy was performed in July, 1885. This relieved him, but he gradually sank and died early in the present year (1886).

Case VIII. *Excision of rectum.*—Mrs. S., æt. forty-two, consulted Dr. Fenwick for some affection of the rectum for which she had suffered for the last six months. Was troubled with painful and difficult defecation and passed imperfectly formed feces. On examination, found a cancerous ulcerated growth about as large as a penny on the anterior wall of the bowel one inch above the anus, beyond this several large glands could be felt. Excision advised and operation performed on the 3d of February, 1886. The whole bowel was removed and the external sphincter preserved—about three and a half inches taken away. Diseased glands all removed. The end of the healthy bowel was brought down and stitched to the anus. In separating the anterior wall of the rectum from the vagina, the latter structure was torn slightly, but the rent was immediately sutured. The peritoneum, where the parts between the bowel and vagina were separated, prolapsed into the wound but was not wounded. The patient rapidly recovered, and when last seen had good retentive power.

In operating, Dr. Fenwick remarked that after the first incision he chiefly used his fingers to separate the bowel from the surrounding structures.

CORRESPONDENCE.

EXTRAUTERINE CHANGED TO INTRAUTERINE PREGNANCY BY ELECTRICITY.

To the Editor of The Medical News.

Sir: In this age of ohms, ampères, and volts, scepticism as to the power of electricity is in the highest degree unreasonable—not to say reprehensible. If electricity, transported thirty-five miles by telegraph wire, can move an ordinary locomotive engine from one place to another, surely the same power can cause an embryo to move a few inches along the *Chemin de Fallopius.*' It would appear so to Doctors Garrigues, Mundé, and Stabler. Upon the communication of the last-named gentleman in The Medical News of Feb. 27, I should like to make just two criticisms.

1. The patient was delivered of a four months' fœtus on the 13th of December, and on the 18th of November—within a month—the sound had been passed into an apparently normal uterus, to the interior of which applications of iodine and nitrate of silver were made. It is, I believe, invariable in cases of extrauterine pregnancy for the uterus and its mucosa in the early months to undergo a development proportionate in some degree to the growth of the ovum. The decidua vera may form a velvety, highly vascular layer a quarter of an inch in thickness. In the cases of extrauterine pregnancy which I have dissected, this enlargement has always been present, and it was beautifully shown in several specimens recently exhibited by Dr. Formad, at the Philadelphia Pathological Society.

2. We are asked to believe that some time between Dec. 4th, the date of the last application of galvanism, and Dec. 13th, the date of delivery, the embryo was transferred from the tube into the uterine cavity, and it is suggested that the hypertrophied walls of the tube under the stimulus of electricity effected the removal.

That it could have been a pure tubal pregnancy seems unlikely from the age which the ovum had attained, and from the very perfect state of placenta and appendages. So far as we have observed, there is in these cases *thinning*, not hypertrophy, of the muscular coat of the tube. If within the proximate end of the tube, surely there would have been, at the middle of the third month, considerable enlargement of the uterus.

I am, yours, etc.,

E. Y. D.

NEWS ITEMS.

CHICAGO.

(From our Special Correspondent.)

Rush Medical College.—The forty-third annual commencement exercises of Rush Medical College occurred on the 16th instant. One hundred and fifty-six students received the ordinary degree of Doctor of Medicine. Five gentlemen received the honorary degree, namely, Drs. D. A. Huffield and W. M. Hanna, of Illinois; Dr. Hoeber, of Hamburg, Germany; Dr. J. A. Standiland Grant, of Cairo, Egypt; and Dr. Daniel Hack Tuke, of London.

About 410 students have been in attendance upon the College during the past term.

In the evening of the 16th, at the Palmer House, the Faculty of the College gave a banquet to the alumni, over four hundred of whom were present.

Hereafter students in this College must, in order to graduate, take a special course in the Laboratory of Physiology and Pathology. The Laboratory has been prepared for this work and Dr. A. J. Ochsner, of Wisconsin, has been appointed Demonstrator in this department. The course will consist of fifteen or more lessons, which will be devoted to the study, with the microscope, of normal and morbid specimens of tissues; of urinary sediments, sputa, microörganisms, etc.

A Post-Graduate Medical School has been organized to combine the clinical and practical laboratory teaching of Rush College, the clinical work of the Central Dispensary of West Chicago, the Presbyterian Hospital, the Eye and Ear Infirmary, and, to some extent, the Cook County Hospital. The sessions of the school will probably occur in June, July, and August, and take the place of the Practitioners' Course which has heretofore been carried on each spring by Rush College. It is not expected that any didactic lectures will be given, but that the teaching will be practical and clinical entirely. An announcement of the school will be issued in the near future.

Cooking for Invalids.—The importance now attached to diet in the treatment of disease necessitates especial care in the preparation of food for invalids. Physicians are aware that such preparation is practically impossible to the ordinary cook in a private family, not only because she has no time apart from her regular duties, but because she is, as a rule, unwilling and incompetent to work by weight and measure, watch and thermometer. Especially is this the case with the partially pre-digested foods, which a labor-saving cook can easily make to seem right, while they are in fact valueless. It is also difficult, even for trained nurses, from their lack of general experience in cooking, which cannot be supplied by the few lessons they may receive while under training.

To meet this difficulty, the New Century Guild of Working Women, 1131 Girard Street, Philadelphia, offers to prepare and deliver to order all kinds of foods prescribed by physicians, including all forms of pre-digested nourishment.

The New Century Guild is a branch of the New Century Club, whose name is sufficient guarantee of its conscientiousness in its undertakings.

The German Medical Congress.—The fifth Congress "*für innere Medicin*," will take place at Wiesbaden from April the 14th to the 17th, under the presidency of Dr. Leyden, of Berlin. The programme of papers and discussion is as follows: At the first sitting, Wednesday, April 14th, the Pathology and Therapeutics of Diabetes Mellitus, introduced by Drs. Stokvis (Amsterdam), and Hoffman (Dorpat); second sitting, Thursday, April 15th, the Operative Treatment of Pleural Exudation, Dr. Fräntzel (Berlin), and Dr. Weber (Halle); third sitting, Friday, April 16th, the Therapeutics of Syphilis, Dr. Kasson (Vienna), and Dr. Neisser (Breslau). Other communications will be made on Antipyresis, by Dr. Riess, of Berlin; on Ptomaines, by Dr. Brieger; on Blood-pressure in Morphia-narcosis, by Dr. Fick, of Würzburg, etc.

H. J. Bigelow, M.D., has resigned his position as surgeon to the Massachusetts General Hospital. His resignation has been accepted by the Trustees, and he has been made Surgeon Emeritus, with five beds placed at his disposal.

Another Student for Pasteur.—It is announced that the city of Amsterdam will send Dr. Saltet, of the hygienic laboratory, to Paris, to study M. Pasteur's methods of inoculation for rabies. The expenses will be paid by the municipal funds.

The Fifteenth Congress of the German Surgical Society will be held in Berlin, from April 7th to 10th. Among the subjects put down for discussion are: tuberculosis (continued); the results of operation on complicated harelip; operations on the urinary bladder, including high and median lithotomy. Information may be obtained from Professor Gurlt, Bernburger Strasse, 15–16, Berlin.

Extirpation of the Kidney.—On Monday, February 1st, at the London Hospital, Mr. Frederick Treves removed from a woman, aged thirty-five, the left kidney, together with both ovaries—the kidney for hydronephrosis, the ovaries for multilocular cystomata. The patient, we understand, is doing remarkably well.

Dr. Luchsinger, Professor of Physiology in Zurich, has died at Meran. It is expected that Dr. Gaule, who has been lecturing for him, will be elected.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING FEBRUARY 27, 1886.

Clark, J. H., *Surgeon*.—Detached from the "Hartford," on the reporting of his relief, Medical Inspector Bradley.

Bradley, Michael, *Medical Inspector*.—Ordered by steamer of March 10 from New York to Aspinwall, thence to Panama, and to the "Hartford," as the relief of Surgeon J. H. Clarke.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 23 TO MARCH 1, 1886.

Spencer, Wm. G., *Captain and Assistant Surgeon*.—Ordered for duty at Fort Yates, Dakota Territory.—*S. O. 17, Department of Dakota*, February 23, 1886.

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ORIGINAL LECTURES.

THE ETIOLOGY, MORBID ANATOMY, VARIETIES, AND TREATMENT OF CLUB-FOOT.

Two Clinical Lectures delivered at the Philadelphia Hospital.

BY A. SYDNEY ROBERTS, M.D.,

SURGEON TO THE HOSPITAL, AND ORTHOPÆDIC SURGEON TO THE OUT-PATIENT DEPARTMENT OF THE UNIVERSITY HOSPITAL; INSTRUCTOR IN ORTHOPÆDIC SURGERY IN THE UNIVERSITY OF PENNSYLVANIA, ETC.

LECTURE I.

GENTLEMEN: Every observant person, whether within or without the profession of medicine, must be impressed with the prevalence of various deformities in individuals of the human family, and their very existence must cause him to reflect upon the causes of their being, their chronic and progressive nature, and the apparent difficulty of arresting them. Much of this has been due to lack of knowledge of the mechanical factors which enter into their etiology, and the very general neglect the subject of malformations has received, from an educational standpoint, in our medical schools. Though twenty-five years have elapsed since the establishment of orthopædic surgery as a legitimate special branch of surgical art, its science and practice, noticeably in this city, are permitted to occupy a very subordinate position, and its principles are practically untaught. In this clinic, which will initiate the course of lectures upon orthopædic surgery in the Philadelphia Hospital, which it will be my privilege to deliver before you this Spring, no better subject could be chosen than one descriptive of *club-foot*, a condition which you will frequently meet in practice, and of which many examples may be constantly observed in the nervous, obstetrical, and surgical wards of this hospital.

We may define club-foot, or talipes, which latter designation was first employed, about thirty years ago, by William J. Little, of London, as a deformity of the foot; caused by paralysis, permanent spasm, or structural shortening of the muscles, contractions of fasciæ or ligaments, which result in an alteration of the normal relations of the tibio-astragaloid articulation, or between the bones of the tarsus proper. Under the generic term club-foot, or talipes, we include all deformities of the foot which occur on an antero-posterior or transverse plane, and which are characterized by flexion, extension, inversion, or eversisn.

To obtain a clear conception of the deformities under consideration, it is best to divide the foot into an anterior and a posterior portion, the former, the "*pes*," or foot proper, and the latter, the "*talus*," or ankle. These portions articulate at Chopart's joint, which is formed by the astragalus and os calcis behind, and the scaphoid and cuboid in front. For purposes of clinical study, club-foot is most conveniently separated into two classes, composed of the simple and the compound forms. Of the former there are four varieties, two between the tibia and foot, namely, *equinus*, in which the heel is raised, the foot being held in the extended position, the patient walking upon the ball of the foot; and *calcaneus*, its opposite, in which the patient walks upon the heel, the foot being drawn into the position of flexion. There are also two lateral deformities: *varus*, in which the internal border of the foot is elevated, the sole directed inward, and the anterior portion of the foot adducted; and *valgus*, its opposite, in which the outer side of the foot is raised, and the sole everted. Any combination of these simple varieties will present compound forms, such as *talipes equino-varus*, *equino-valgus*, *calcaneo-valgus*, etc.; some authors have added others: for instance, *talipes cavus*, in which the arch of the foot is increased, and *talipes planus*, or spurious valgus. in which the foot is flattened, the arch resting upon the ground. Recently, Shäffer, of New York, under the title "*non-deforming club-foot*," has described a class of cases in which there is little or no deformity, but which are very important on account of the inconvenience they occasion the sufferer, and the results to which they give rise, coupled with the liability of being overlooked, unless care be taken in the examination of the patient.

The varieties of club-foot may be classified as follows:

TABLE No 1.

- Varieties
  - Simple
    - Antero-posterior
      - Equinus.
      - Calcaneus.
    - Lateral
      - Varus.
      - Valgus.
  - Compound
    - Equino-
      - Varus.
      - Valgus.
    - Calcaneo-
      - Varus.
      - Valgus.
  - Other forms
    - Cavus.
    - Planus.
    - Non-deforming.

As previously mentioned, these simple forms, or their combinations, constitute the deformities which you will meet with, and a knowledge of their relative frequency is of interest and importance. Much difficulty is experienced in the investigation of this subject, owing to the difference in nomenclature employed by various authors, similar conditions being spoken of under different names. Duval has recorded 1000 cases, of which 574 were congenital; 364 of these were in males, and 210 in females. His statistics as to relative frequency are valuable, and are as follows:

TABLE NO. II.

	Cases.	Boys.	Girls.
Equinus and equino-varus	417	215	202
Varus	532	302	230
Valgus	22	14	8
Calcaneus	9	6	3
Extreme calcaneus	20	13	7
Totals	1000	550	450

I have compiled the following statistics, shown in Table No. III., from the records of the New York Orthopædic Hospital, and the Orthopædic Dispensary of the University of Pennsylvania:

Table No. III.

	Congenital	Acquired.
Equinus	5	87
Calcaneus	3	31
Varus	73	66
Valgus	29	236
Equino-varus	95	68
Equino-valgus	3	9
Calcaneo-varus	0	2
Calcaneo-valgus	5	34
Totals	213	533

Lannelongue has collected the statistics of the Maternity Hospital (Paris), covering a period of ten years, from 1858 to 1867, inclusive. In 15,229 births, 8 children were born with club-foot, a proportion of about 1 case in 1963 births.

The condition may be present as a congenital or an acquired deformity, and the relative frequency of the two forms may be seen by reference to Table No. III., from the cases treated in the New York Orthopædic Hospital and the Orthopædic Dispensary of the University of Pennsylvania, in which are recorded 746 cases, of which 213 were congenital, and 533 acquired. Tamplin's deductions shown in Table No. IV., covering 764 cases of congenital talipes, show the relative frequency to be as follows:

Table No. IV.

Congenital.	
Talipes varus	688 cases.
" valgus	42 "
" calcaneus	19 "
" varus of one foot and valgus of the other	15 "
Total	764 "
Acquired.	
Talipes equinus	401 "
" valgus	181 "
" equino-varus	162 "
" calc. and calc.-valgus	110 "
" equino-valgus	80 "
" varus	60 "
" varus of one foot and valgus of the other	5 "
Total	999 "

Adams states the proportion between the congenital and acquired forms to be as 2 : 3, and the tables already referred to show the large preponderance of cases in which the deformity has been acquired. Giving due weight to the statistics which have been alluded to, we may conclude that club-foot occurs more frequently in males than in females; that cases in which inversion and adduction of the foot, either accompanied or not by elevation of the heel, or the varus types, are oftener met with, and that the right foot is more frequently deformed than the left, but that many more cases of double club-foot occur than of single; and that the primitive forms, pure equinus, calcaneus, varus, or valgus, are rare.

The etiology of congenital talipes is veiled in obscurity. The difficulty of studying pathological changes occurring during intrauterine life is self-evident, as the fœtus cannot be subjected to any direct scientific method of investigation. Comparative physiology, embryology, and the changes and diseases which occur subsequently to birth give us data of comparative value, but all such investigations have resulted in much speculation, many theories, and but few facts. The theory that diseases which produce the acquired forms have their prototypes during intrauterine existence has its supporters, notably Little. But microscopical research has not yet shown the existence of changes in the fœtal brain and spinal cord analogous to those found in cases of the acquired paralytic forms. Voluntary muscular control is retained in congenital cases, while it is lost in the acquired varieties referred to, and the electrical reactions are markedly different; so that this theory has no foundation to rest upon, except the similarity in the appearance of the deformities.

Hereditary influence, with its transmission of peculiarities of face and form, of various tendencies, of traits of character, etc., has some weight as an etiological factor.

Another theory of causation is that of arrest of development, and although cases occur in which coexisting deformities, such as spina bifida, harelip, cleft palate, etc., are also present, the feet show no evidence of arrest of development, the only alteration being that of the direction of the planes of the feet which is characteristic of the deformity. Adams and Hüter, it is true, have described changes in the bones involved, consisting of alteration of form and relative position of articulating facets, but these changes are by no means constant, and whether they be causative or secondary to the altered relation of the bones, is a matter regarding which there is much difference of opinion. Personally, I incline to the latter view, although the theory has many eminent supporters, including A. Lücke.

The theory which has, perhaps, the greatest number of votaries, is that which ascribes to abnormal intrauterine pressure, and deficiency of amniotic fluid, the influence productive of club-foot; the foot being permanently fixed in the abnormal position during intrauterine life. Although numbering among its supporters such names as Volkmann, Kocher, Banga, and Parker, I do not think the assumption tenable, for the following reasons: Were this deformity the result of pressure, it is reasonable to believe that in many cases deformity of other members would coexist, having been exposed to the same pressure-influence; such, however, is not the case, combinations of this kind being of rare occurrence. Again, in children who have been born with club-foot, and in which the mother had previously given birth to several healthy children, no appreciable difference in the quantity of amniotic fluid discharged during the various labors can be made out. Further, I have recently seen a case of double equino-varus in a twin, the other child showing no deformity whatever.

Dr. H. W. Berg, of New York, in a series of investigations which are commendable for their originality, ascribes congenital equino-varus to a failure of rotation during intrauterine existence. In his studies at the New York Hospital and Wood's Museum at Bellevue Hospital, he has followed the changes which occur in the position of the lower extremities at different periods of fœtal life. At first, the entire leg is rotated outward, and the feet are in a position of marked varus, and,

subsequently, of equino-varus. Later, rotation inward takes place, gradually diminishing the amount of varus; but even after this rotation has been completed, some varus remains, and, in a very slight degree, is the normal position of the foot in the newborn. Dr. Berg found, in some instances, equinus to be present in fœtuses of two, three, and four months, the condition disappearing in the process of normal growth, and he reaches the conclusion, that in early fœtal life equino-varus or varus is physiological, and that its disappearance is coincident and keeps pace with the normal rotation of the limb. When, from any cause, rotation is retarded or arrested, club-foot results.

To summarize the theories to which I have alluded, and which constitute the principal ones advanced in explanation of the causes of congenital talipes, I have reduced them to the following: that which would ascribe club-foot to pathological changes occurring in the fœtus, similar to post-natal diseases; that which assumes as a cause, the action of mechanical forces upon the child in utero; then the theory of heredity, with its influences but little understood; the theory of arrest of development; and, lastly, the theory promulgated by Dr. Berg, which would make club-foot dependent upon the absence or retardation of rotation. The last mentioned possesses the merit of being demonstrable by embryological research, and in the present state of our knowledge it has, in my opinion, greater claims to recognition than those which are based upon similarity of post-natal conditions, or those which rest upon even a more fanciful basis.

Turning our attention now to the consideration of the etiology of acquired talipes, we do not find the path of investigation beset with the difficulties we met with in the study of the causation of the congenital types. We may divide the causes into six groups: 1st. Infantile spinal paralysis. 2d. Spastic contractions due to an irritative lesion of the spinal cord. 3d. Contraction of aponeuroses. 4th. Traumatism. 5th. Rachitis. 6th. Hysteria.

By far the greater number of cases of acquired talipes are due to infantile spinal paralysis—"poliomyelitis anterior." This is essentially a disease of childhood, usually occurring at the period of dentition, its invasion being, as a rule, sudden, marked by fever, gastro-intestinal disturbance, sometimes ushered in by a convulsion, and immediately followed by muscular paralysis, more or less extensive. Recovery follows rapidly in many of the muscles affected, but is rarely, if ever, complete, a certain amount of residual paralysis remaining permanently, in one or both of the lower extremities. Atrophic changes now take place, and are characterized by wasting of the muscles of the limb, loss of electro-contractility, especially to the faradic current; later by reactions, when stimulated by galvanism, characteristic of degenerative change, and deformity, of which the most frequent is club-foot.

It has been thought that the deformity in these cases was due to the loss of equilibrium between the muscles of the limb; one set being paralyzed, their antagonists drawing the foot into the deformed position; but Hüter has shown that the weight of the limb, in the position assumed in paralysis, is the cause of contractions, and that these were due to atrophy and arrest of growth, and were not in any sense muscular. In some cases, resulting from poliomyelitis, the deformity is due entirely to the force of gravity, the foot dropping into the position of equinus, and the anterior portion being adducted by its own weight. In these cases there is little if any contraction, and the deformity is readily reduced by manual pressure, but, of course, returns immediately upon the removal of the hand. Volkmann, also, has directed attention to the fact, that owing to the weight of the body, the limb assumes an abnormal position, which eventually becomes permanent, being due, not to contraction, but to abnormal growth.

The "spastic paralysis" of Erb is also productive of club-foot. This condition has been called by Adams "paralysis with rigid muscles," and by Seguin, "tetanoid paraplegia." It is well illustrated by the case that I now present.

Case 1. *Tetanoid Paraplegia, producing double Talipes Equino-varus.*—Barney, æt. six years. No record or information could be obtained regarding previous history. Having stripped him, it will be noticed that the thighs are adducted and slightly flexed upon the pelvis. The legs are held firmly at a moderate degree of flexion at the knee-joint. The feet are extended and inverted in the position of pronounced equino-varus. All muscular groups of the lower limbs are in a condition of spasmodic rigidity. You will notice these contractions may be temporarily overcome by firm and continuous pressure, but immediately reappear upon the removal of the opposing force. Locomotion, with assistance, is accomplished with difficuly by a swinging, discordant gait, typical of the disease, the patient walking only upon the ball of the feet and toes, the weight of his body not being sufficient to overcome the contraction and bring the heels to the floor. The other symptoms characteristic of the central lesion—deficient intelligence, strabismus, exaggerated muscular reflexes, and general rigidity and spasm of the muscular system, are all present. As I propose to operate upon this patient, I will defer a further consideration of his *feet* until my next clinic. The condition appears to be due, in some instances, to retarded development in the motor tract of the brain; in others, to a lesion in the same position, followed by secondary changes in the lateral columns of the cord. The researches of Rupprecht, of Dresden, not only show that tenotomy is followed in some of these cases by improvement in the position of the feet, but that the mental state is also appreciably benefited by the operation. His article has been published in Volkmann's series of clinical lectures, and constitutes an important and valuable contribution to our knowledge of this interesting class of cases. Various spinal diseases, acute compression, syphilis, tumors, caries, etc., are frequently productive of a similar condition. Other diseases of the nervous system should be mentioned as causes of club-foot. In rare cases, pseudo-hypertrophic muscular paralysis, and post-hemiplegic contractions produce the deformity, but neuromimetic conditions, which of late years have attracted much attention, are more frequently the cause of it. A careful elimination of other possible etiological factors in a given case, coupled with a proper appreciation of the general condition, will usually lead to correct conclusions in cases of the latter kind.

Sayre has advocated the view, that paralysis due to reflex irritation is, in many instances, productive of

talipes, and has reported cases in which he claims that functional disturbance of the nervous system can cause spasm of muscles, which, if sufficiently prolonged, while healthy growth continues in their antagonists, becomes the cause of a permanent deformity. Much discussion has taken place concerning this condition as a cause of club-foot, but I do not consider that Dr. Sayre's theory is in any way tenable.

Talipes equinus sometimes occurs as a concomitant of the paraplegia of Pott's disease of the spine, but disappears upon recovery from the paralysis; joint diseases of the lower extremity are also potent factors in the production of club-foot. In ankle-joint disease the deformity may follow disease of the articulation, and remain as a permanent condition due to ankylosis of the joint in the position of extension. In hip-joint disease, it would be due to prolonged malposition during the period of growth. I have lately seen a case of this disease in which the limb upon the affected side was shortened but one inch, and in which there was a marked equinus accompanied by contraction of the plantar fascia. Occupations requiring long-continued standing in one position can be also considered causative agents; printers, bakers, blacksmiths, and those engaged in kindred trades may be mentioned as the principal sufferers. The enforced position and the weight of the body are the factors in the production of this variety of the deformity, which is most commonly a valgus. The same remarks will apply to the valgus of adolescence, due probably to rapid growth, and increased weight of the body, without, however, a corresponding development of the muscles, aponeurosis, and ligaments of the feet. The influence of long-continued decubitus is further shown by the case reported by Volkmann, in which an equinus was found, after prolonged typhoid fever, so resistant that it required a year's treatment to restore the feet to their normal position. As to traumatism, it will be only necessary to allude to the possibility of wounds, burns, rupture of tendons, etc. The former may result in the production of deep cicatrices, which by their contraction tend to draw the foot into a deformed position. Spurious valgus or splay-foot is frequently the result of rachitis, although, as before mentioned, occupation is often an important factor in its causation. All these forms may be simulated by hysteria, and this class of cases frequently taxes the knowledge and ingenuity of the surgeon; their recognition lies in a thorough understanding of general morbid conditions and a careful diagnosis by exclusion.

Before closing, I desire to call your attention to the morbid anatomy of club-foot. I shall, however, touch upon it only sufficiently to give you an idea of the muscles involved in the production of the various deformities and will illustrate my remarks by reference to the following classification.

TABLE NO. V.

Extension (equinus)	Gastrocnemius. Soleus. Plantaris. Peroneus longus.
Flexion (calcaneus)	Tibialis anticus. Peroneus tertius. Extensor longus digitorum.
Adduction (varus)	Tibialis anticus. Tibialis posticus. Flexor longus digitorum.
Abduction (valgus)	Peroneus longus. Peroneus brevis. Peroneus tertius.

Dividing the muscles into three groups, which move the foot in four directions, as shown in Table No. V., we have a posterior group, the calf muscles, the gastrocnemius, and the soleus, and two anterior groups, the tibial and the peroneal. In the normal condition, an equilibrium is maintained between these muscles, and the correct anatomical relation of the parts is preserved; but should spasmodic contraction or paralysis of one or more of these groups occur, the balance is destroyed, and deformity takes place. As has been remarked, the purely primitive forms of club-foot are extremely rare, and this statement will apply to these deformities, whether they be congenital or acquired. A brief consideration of them, however, is necessary in order that a clear understanding of the compound forms which are encountered most frequently in practice may be obtained. They are *equinus*, *calcaneus*, *varus*, and *valgus*; the two former being antero-posterior deformities; the two latter occurring upon a transverse plane.

In *talipes equinus* the heel is raised, the patient walking upon the ball of the foot. Here we find the posterior group of muscles, consisting of the gastrocnemius and soleus contracted and shortened, the tendo-Achillis being felt as as a tense band. In the opposite condition, *talipes calcaneus*, the anterior groups of muscles, tibialis anticus, posticus, and peronei, are at fault, and being shortened, maintain the foot in the position of flexion, the patient walking upon the heel. *Talipes varus* manifests itself by inversion and adduction of the foot, the deformity taking place anterior to Chopart's joint; in it, the sole is turned inward and raised, and the anterior portion of the foot adducted, the tibialis anticus and posticus and flexor longus digitorum being contracted. In *valgus*, on the contrary, the sole is turned outward, and its outer border raised, the peronei being the muscles at fault. In this deformity, however, the plantar fascia is involved, the arch of the foot being diminished by its relaxation.

In all these varieties, changes occur not only in the muscles, but also in the ligaments, fasciæ, and in the bones themselves, whether as causes or effects; but we shall defer the study of them until our next meeting, my object in briefly mentioning the primitive deformities now, being merely to impress upon you the character of the changed relation of the parts from an anatomical rather than a pathological standpoint, which latter can be best considered when we come to speak of the most frequent of all the forms of clubfoot, namely, *talipes equino-varus*.

(*To be concluded.*)

ORIGINAL ARTICLES.

TREATMENT OF ACUTE INFANTILE BRONCHITIS.[1]

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Infantile bronchitis is probably the most frequent disease which the physician is called upon to treat. It is usually mild and readily controlled by proper remedies, but in other instances, especially when neglected or improperly treated, it becomes by extension downward to the minute bronchial tubes, or to them and the alveoli, one of the most fatal maladies of infancy. It is, therefore, very important that bronchitis in the infant receive timely and proper treatment.

A brief glance at the clinical history of this malady will help to a correct knowledge of its therapeutic requirements. Acute bronchitis is in most instances preceded, and in its first stages accompanied, by coryza, which first arrests the attention of the parents, but within a day or two the inflammation extends to the larger bronchial tubes, and is announced by a cough. The bronchitis is often limited to these tubes throughout the attack, under which circumstances it is so mild that treatment is scarcely required, but between this mild disease and that severe form in which the minute bronchial tubes are involved, there is every grade of severity.

Bronchitis in the infant is primary or secondary. Two diseases are always accompanied by it, in a form so severe that the cough which it causes is a prominent symptom in each, to wit, measles and pertussis. It occurs also in a mild form in typhoid fever, and is present in tuberculosis, and in many cases of diphtheria. It requires, in a measure, different remedies according to the conditions in which it occurs, but the treatment may be most conveniently considered under the two headings of mild and severe bronchitis.

Bronchitis can probably be aborted or rendered milder in some instances by an emetic employed when the first symptoms appear. Its effect is more certain if the patient drink warm water at the same time, and take a warm foot bath or general bath. The syrup of ipecacuanha is perhaps the best medicine for this purpose. It promotes bronchial secretion and diminishes the force of the circulation. But ordinarily the physician is not summoned until the bronchitis is established, and measures designed to abort it are inadequate.

Treatment of mild bronchitis. The inflammation is limited to the larger tubes, or to these and those of medium size; if to the larger tubes, it gives little inconvenience, and often passes off without treatment. The patient is said to have a cold. In mild bronchitis, the respiration is but slightly accelerated, the temperature not above 102°, the cough not painful, or attended by a slight degree of soreness in the upper sternal region; the thirst is moderate, and the appetite not notably diminished.

In this form of bronchitis, in which there is no increase of symptoms from day to day, demulcent and mild expectorant medicines are sufficient to cure the disease. Even domestic remedies are sufficient. It is of such cases that the late Dr. James Jackson, of Boston, in his advice to a young physician, wrote as follows: "For young children I employ the following: Take of either almond or olive oil, of syrup of squills, of any agreeable syrup, and of mucilage of gum-acacia, equal parts, and mix them. Of this mixture, a teaspoonful may be given to a child two years of age, a little less, if younger, and increase if older, so as to double the dose to one in the sixth year."

Of the mixtures officinal in our pharmacopœia, the mistura glycyrrhizæ composita is perhaps the best for mild bronchitis, and it is largely used. It is beneficial not only in the primary disease, but in the secondary or symptomatic bronchitis of measles and pertussis. The small amount of tartrate of antimony and potassium which it contains, $\frac{1}{64}$ grain to the drachm, has a slight sedative effect on the action of the heart without causing nausea, and it promotes expectoration. The paregoric in this mixture being one part to eight, is useful if the infant be restless, and deprived of the needed sleep. A patient of one year can take one-third of a teaspoonful, and one of two years half a teaspoonful, every two to four hours. The syrupus ipecacuanhæ compositus of the French pharmacopœia is also one of the most beneficial remedies for mild bronchitis. It is slightly laxative, and it produces no narcotic effect. It consists of the ipecacuanha and senega roots, thyme, the blossoms of the red poppy, which I believe are not narcotic, orange-flower water, white wine, sugar, and a small amount of sulphate of magnesium. An infant of eight months can take half a teaspoonful every second hour, and one of eighteen months or two years, one teaspoonful every second or third hour. I have prescribed this syrup during the last two years, and mothers who have observed its effects have commended it. As is seen from its composition, it promotes expectoration without any of the ill effects which sometimes result from the use of those mixtures which contain opiates. If it were introduced into our pharmacopœia it would probably be largely used in this country.

If the temperature rise to 102° or above, with the respiration in a corresponding degree accelerated, the cough painful, and the pulse frequent and strong, indicating extension downward of the inflammation, the following prescription I have found useful:

℞.—Spts. ætheris nitrosi,
Syrupi ipecacuanhæ . . āā ℥ij
Ol. ricini . . . . . ℥iij
Syr. bal. tolut. . . . . ℥j.—M.

Sig. Shake bottle and give half a teaspoonful to an infant of one year; one teaspoonful to an infant of two years.

Mild bronchitis, with the use of such remedies as have been mentioned, and with the external treatment of the chest which will be described hereafter, gradually abates in most instances. But the physician should be prepared for the other alternative, namely, an increase in the severity of the symptoms by exten-

[1] Read before the Section of Obstetrics and Diseases of Children, New York Academy of Medicine, January 28, 1886.

sion of the inflammation to the smaller tubes, and the change of a mild into a severe bronchitis.

Severe or grave bronchitis. The inflammation has extended to the minute bronchial tubes: the mucous membrane of these tubes is hyperæmic and swollen, and actively secreting. On account of the small size of the tubes, many of them become occluded by muco-pus, which acts as a ball-valve, allowing the escape of air upward from the alveoli, but preventing its entrance into them. Hence the alveoli connecting with these closed bronchioles become less and less distended with air, undergoing partial collapse, and some of them pass into a state of complete atelectasis. This occurs most frequently in the posterior and depending portions of the lungs.

Another equally serious pulmonary complication often occurs. I refer to catarrhal pneumonia. The inflammation in its progress downward in the most severe forms of the disease, passes from the bronchioles to the adjacent alveoli, usually in more places than one. With the occurrence of this complication, the symptoms are aggravated, the suffering increased, and the prognosis is obviously the more unfavorable the greater the extent of this complication. Bronchopneumonia thus occurring is indeed one of the most dangerous diseases of infancy, and one that requires the utmost vigilance on the part of the physician, and the most skilful use of remedies, to save the life of the patient. The respiration in severe bronchitis is greatly accelerated, numbering 60, 80, or even 100 or more per minute, and each inspiration is usually accompanied by a moan. The pulse is in a corresponding degree accelerated, and is often feeble; the countenance is anxious and indicative of suffering, and the patient restless.

In this form of bronchitis the indications for treatment are: 1. To promote expectoration, and prevent clogging of the tubes; 2. To diminish the inflammation, and prevent its extension; 3. To strengthen the action of the heart and prevent exhaustion.

In employing measures to fulfil the first indication, it should be borne in mind that the cough is useful as the only means of expelling the mucus, and that patients never do well with severe bronchitis that do not cough often. When asked by parents to prescribe something to diminish the cough, I inform them that the safety of the patient depends on the strength and frequency of this symptom, and that it would be dangerous to put a stop to it by the use of opiate or other medicines, and I now very seldom combine an opiate with the cough mixture for severe infantile bronchitis. If the infant be allowed to cough every five or ten minutes, and the cough be rendered as loose as possible by appropriate remedies, it will do better, according to my observations, than when the cough occurs at longer intervals. If it requires sleep, I give medicine separately once or twice daily, as in the following formula for a child of one year:

R.—Liq. opii compositi (Squibb's) . gr. xij.
Potassii bromidi . . . . ℥j.
Syr. rubi idæi (raspberry) . . ℥ss.
Aquæ . . . . . ℥iss.—M.
Sig. Dose, one teaspoonful.

I have seen much harm done by employing stupefying agents which, while they produce sleep, also cause suspension of the cough, upon the strength and frequency of which the safety of the infant depends. The very prevalent opinion among the laity that the cough does no good to the infant unless mucus is ejected from the mouth, needs to be corrected. In order to obtain their full coöperation, I often find it beneficial to explain to the mother or nurse the process of expectoration in the infant, so that they understand that the tubes are freed from mucus as effectually when it is swallowed, after the cough, as when it is received upon the handkerchief.

Among the agents to fulfil the first indication mentioned above—that of promoting expectoration with the least possible loss of strength—the first place must be given to the ammonium salts; of which the two in common use are the carbonate and muriate. The carbonate is both a stimulant and expectorant, but its irritating property is such that it should not be prescribed in a larger dose than one grain to the drachm; a larger dose frequently repeated may produce gastritis, especially if there be little food in the stomach. It has been known to produce gastritis in animals when administered in considerable quantity, and its irritating action on the fauces can be noticed by any one who swallows a solution of two or three grains to the drachm. The Curator of the Foundling Asylum has noticed in the cadaver the ill effects of the more irritating ammonium preparations. In one instance in which the aromatic spirits of ammonia had been employed, it was supposed with sufficient dilution, the extent and severity of the gastritis were such that it seemed as if this agent might have hastened the fatal result. The preferable way of employing this valuable agent, to prevent its irritating action upon the stomach, is to prescribe it dissolved in water, and order each dose to be administered in a tablespoonful of milk. The muriate does not possess the irritating property of the carbonate, and it can be safely administered in double or treble the dose of the latter, and at short intervals. It is therefore, I think, to be preferred to the carbonate in most cases of severe bronchitis, except at an advanced stage, when an active stimulant of the heart is required.

In this connection, I will state my conviction that the ammonium salts, whether the carbonate or muriate, are not given in sufficiently frequent doses in the practice of most physicians, in severe forms of the disease which we are now considering. If there be marked dyspnœa, and urgent need that the mucus be expectorated from the tubes which it is obstructing, I think that the effect is better if the dose be administered every half hour instead of every second or third hour. Half-hourly doses are not inconveniently given if the vehicle be milk.

The muriate of ammonium may, like the carbonate, be administered in milk, but the following is with me a favorite formula:

R.—Ammonii muriat. . . . ℥j.
Syr. bal. tolut. . . . ℥ij.—M.

Fifteen drops, which contain one grain of the muriate, should be given to an infant of three months, and thirty drops, or two grains, to an infant of six

months. Physicians, in my opinion, often defer too long the use of the ammonium salts, using for the first days depressing remedies instead. The infant suffering from dyspnœa, and requiring a strong and frequent cough to expel the mucus, may, according to my observations, take the muriate from the first day of the sickness with benefit; and every half hour or hour when it is awake. No harm can result from the use of this agent in frequent doses, and for several days, such as might result from the carbonate.

The ammonium salts tend to increase the frequency of the cough, perhaps by the slight irritation which they produce upon the fauces in the swallowing. The muriate may be employed so long as an expectorant is required, and usually with as much benefit as can be derived from any drug.

As regards the use of those other common expectorants which have long been employed, particularly senega and squills, those have been better observers than myself who have witnessed any marked benefit from them.

It is so necessary, as a means of relieving the dyspnœa, to assist the infant to expel the mucus with which the tubes are clogged, when the respiration is much embarrassed, that an emetic is sometimes proper. One should be selected which causes little exhaustion. The syrup of ipecacuanha may be employed, given with an alcoholic stimulant, as brandy or whiskey. Infants a few months old I have sometimes temporarily relieved by removing with the finger or a swab the mucus that collected upon the fauces. This simple operation produces a forcible cough, and sometimes vomiting, by which a large amount of mucus is expelled.

The necessity of sustaining the strength of the patient, and, at the same time, of reducing the fever, has led to the employment of quinine by many, perhaps most, physicians in the treatment of severe infantile bronchitis. I cannot say that I have noticed any marked reduction of temperature from its use in bronchitis or broncho-pneumonia, but it has seemed to me that it has been useful as a heart tonic. Much harm may, however, be done by employing quinine in the treatment of infants, by the use of doses too large. In the adult, according to the sphygmographic observations of Dr. M. Putnam Jacobi, while quinia in a dose of five grains increases the strength of the heart's contraction, a dose of twenty grains enfeebles the contractile power of the heart in a marked degree. According to Stillé and Maisch, "Poisonous doses occasion dyspnœa and noisy respiration, which is also jerking, interrupted, retarded, and finally arrested" (*National Dispensatory*). A dose too large, therefore, would be likely to produce just such symptoms as occur in severe broncho-pneumonia. To an infant aged one year, with this disease, I do not give a larger dose than one-half grain to one grain of the sulphate of quinia, every fourth hour, as in the following formula:

℞.—Quiniæ sulphat. . . gr. xij.
Ext. glycyrrhiz. . . ℥ss.
Syr. pruni Virginiani . ℥ij.—Misce.

Quinine, however, administered to an infant is very likely to cause vomiting from its bitterness, a result which I do not regret in the treatment of capillary bronchitis, because it causes the expectoration of considerable mucus. The second or repeated dose is usually not vomited. It is difficult to appreciate the beneficial effects of quinine in this disease, but that it does increase the contractile power of the heart seems probable.

If the temperature rise above 103°, if the infant have a full and strong pulse and flushed face, and if the lungs are not involved, or but slightly inflamed, antipyrin may, according to my experience, be safely administered, in proper dose, and with beneficial effect as regards the febrile movement. It should not be administered at stated intervals, but according to the temperature, so that, perhaps, only one or two doses daily may be sufficient. When the lungs are implicated, and the patient has severe broncho-pneumonia, I have seen such pallor from a single dose of antipyrin, in one instance, that I did not dare to repeat it. It seems to me, therefore, that there should be a careful discrimination in regard to the cases in which it should be employed, so that, while vigorous infants, with severe bronchitis, without pneumonia, or with but slight pneumonia, are benefited by its use, feeble infants, with weak pulse or with extensive pneumonia, and young infants, incur too great risk to justify the employment of this agent, until its exact therapeutic effects are more clearly ascertained.

When the pulse is becoming more rapid and feeble from the extent and severity of the inflammation, the use of digitalis is indicated as a heart tonic. Not infrequently in severe bronchitis, with the minute tubes clogged with muco-pus, the heart is taxed to the utmost to carry on the circulation. Digitalis may furnish the needed assistance by increasing the contractile power of the ventricles. It is, therefore, an important remedy in a large proportion of cases of this form of bronchitis. Two drops of the tincture of digitalis may be given every second hour to an infant of eighteen months, during three or four days, or longer, if the action of the heart be oppressed so as to require it. But no one of the medicines which I have mentioned is more urgently needed in severe infantile bronchitis than alcoholic stimulation. It may be employed at an early stage when the heart begins to fail, without fear of increasing the inflammation. A rule with me is to give two or three drops of brandy or whiskey for each month in the age of the infant after the third month. It should be given hourly, or each second hour, by day and by night, when the infant is awake.

Local treatment. The external treatment of infantile bronchitis has changed greatly within the recollection of the older members of the profession. Thirty five years ago the pernicious teachings of Broussais still had some influence, and the application of one or more leeches to the chest was recommended in the text-books. Leeching did apparently cause some alleviation of the suffering, and, according to my recollection, an easier breathing for a time; but any good which resulted from it was more than counterbalanced by the loss of strength, as indicated by pallor of the countenance and a feebler pulse. It has been properly abandoned during the last twenty-

five years, and is not likely to be employed again as a remedial measure. The same may be said of vesication. Under the teaching of the schools and the books, vesication was employed after the bleeding from the leech bites had ceased. Witnessing the restlessness and increase of suffering which the fly-blister produced, I abandoned its use in the first two or three years of my practice, employing instead the cantharidal collodion, applied in points or small patches, half an inch in diameter, over the anterior part of the chest. It is now many years since I have used the Spanish-fly in any of its forms or witnessed its use in the practice of others in infantile bronchitis, and the disrepute into which it has fallen is not to be regretted.

But how shall the chest be treated? Writers mention the benefit derived from revulsive measures applied to the chest. Prof. Henoch, of Berlin, whose opinions have great weight with all who are familiar with his writings, recommends dry cupping for its revulsive effect. Says he, "Instead of leeches, I now apply wet, and especially dry cups (four to eight, according to the age), as these have at the same time a revulsive effect." The question may be properly asked, Does revulsion do any good? How can producing an afflux of blood to the surface of the chest diminish the severity of the bronchitis, since the bronchial tubes derive their supply of blood from a different branch of the aorta from that which supplies the walls of the chest? However it may be explained, slightly irritating applications which produce moderate redness of the surface of the chest, do seem to assuage in a measure the suffering of the patient, and aid in procuring the needed rest. After observing their effects for many years, I have found no better mode of external treatment for infants under the age of two years, and for all weakly infants whatever their age, than the application of a flaxseed poultice properly prepared. But instruction should be given in the preparation and application of the poultice with all the details which Abernethy was wont to give to his class. A poultice which, in a few hours after its application, lies in a mass upon the epigastrium with the chest bare, does more harm than good. The poultice should be of uniform thickness, of about a line, between two thicknesses of linen, or thin muslin, and so moist that it wets the hands in holding it. For infants under the age of six months, camphorated oil should be thickly smeared on its under surface; for those between the ages of six and eighteen months, instead of the camphorated oil the flaxseed should be mixed with one-twentieth its weight of pulverized mustard, and for those above the age of eighteen months the mustard should be one-sixteenth part. In all those cases in which the respiration is not only hurried, but painful, and accompanied by a moan, and in which the cough is painful, the whole chest should be covered by two poultices, as thin as mentioned above, one over the anterior and the other over the posterior surface, fastened together over the shoulders, and under the arms by small safety-pins, and covered externally by a snugly fitting oil-silk jacket. The poultices thus made should be reapplied morning and evening. They usually cause redness of the surface without pain, but they have never, in my practice, vesicated. They should be continued during the active period of the inflammation. Repeatedly, I have observed the breathing become easier by their use. At the same time, if the febrile movement be so great that it requires to be reduced, an ice bag may be placed upon the head, and the hands and forearms be frequently sponged with cool water or alcohol and water.

Cool water dressing applied to the chest has its advocates, and, although I believe that the poultices give most relief to the majority of infants, it does not seem improbable that robust infants over the age of twenty months with high temperature may sometimes obtain relief from its use. Prof. Henoch writes: "I strongly advise hydropathic applications to the chest from the neck to the umbilicus. A napkin or diaper is dipped in water at the temperature of the room, well wrung out, and then placed around the chest, without exercising any compression, so that the arms are free. This is surrounded by a roll of batting, and then covered by a layer of oil-silk or gutta-percha paper." If the temperature be high, this application should be renewed every half hour, and it may be continued several days. If it be renewed at long intervals, its effect is obviously like that of a poultice.

If the patient begins to convalesce, the application to the chest, whether water or the poultice, can soon be omitted, and batting covered with oil-silk be substituted for it. Finally, the position of the infant, when there is marked dyspnœa, indicating extension downward of the inflammation, should be frequently changed, since a change in position tends to prevent pulmonary congestion, and aid the expectoration. If the infant be placed over the shoulder or upon the lap of the nurse with face downward, its expectoration is often facilitated. Moisture in the room, as that produced by boiling water, also aids the expectoration, probably by rendering the muco-pus thinner and less viscid. When bronchitis occurs in a constitutional disease, as measles or pertussis, as an element of it, it continues as long as that disease lasts, but it can be made milder or less annoying to the patient by remedies such as those mentioned above.

ON THE HEADACHES WHICH ARE ASSOCIATED CLINICALLY WITH CHRONIC NASAL CATARRH.[1]

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THE proximity of the nasal chambers to the brain-case would naturally lead the observer to conclude that the relation which exists between the two regions is one possessing exact clinical value; but this is far from being the state of the case. One is inclined to believe that we are sometimes misled by our anatomical knowledge, and stand purblind in the presence of the most evident signs and symptoms which do not happen to harmonize with our previous conception of the

[1] Read by invitation before the Philadelphia Neurological Society, Feb. 22, 1886.

boundaries of regions and of the paths of the blood-vessels and nerves. A frontal catarrhal headache is at once attributed by the physician to the extension of congestion and of inflammation from the nose to the frontal sinus along well-known lines of communication; but should the pain be confined to the temple, to the top of the head or to the occiput, the association with the nose is not so quickly detected, and, indeed, is apt to be ignored. I have been led so often to believe that any disposition to headache which coexisted with catarrh would disappear, or be greatly ameliorated as a result of treatment, that I have ventured to formulate my impressions on the subject.[1]

Description. The headaches of chronic catarrh are of three kinds: the reflex, the neurotic, and the inflammatory.

THE REFLEX HEADACHE.

The reflex headache is almost entirely restricted to the forehead, the temple, and the vertex. In all varieties of chronic catarrh a dull pain in the region of the forehead is complained of, which may or may not be associated with oppression of spirits and with confusion of ideas. When the disease is confined to that plane of the chamber corresponding to the middle turbinated bone the pain is referred to the temple.[2] The patient will often accompany the account of this pain by a gesture. The index-finger is drawn across the face from the middle of the nose to the temple, and thence, in some instances, to the parietal eminence. The track thus begins at the nose and ends at the temple, or a point beyond. It is not a superficial path, but is referred to a locality lying deep within in the face, and is sometimes described as lying back of the eye. The temporal artery is tense and bounding. An attack of pain, which, in a mild form, may be confined to this region of the face and the temple, will extend, in severe attacks, to the vertex, and even to the nape of the neck. In such phases it is often associated with nausea, and is said to be a "sick headache." Less frequently, the pain is referred, in the first place, to the vertex. The slightest exacerbation of the catarrh causes, in some cases, a severe pain at the top of the head with a subjective impression of heat at the spot, and hyperæsthesia of the scalp. In a patient whom I saw recently, through the courtesy of Dr. S. Weir Mitchell, the pain was of a high grade, and from its persistence had thrown the patient into a pronounced state of nervous prostration. In this person a probe touching the right middle turbinated bone—no matter in how slight a degree, or with what considerate care—would be instantly followed by a complaint of vertex pain.

In reflex headache the inner wall of the orbit, when pressed upon by the finger as far as can be accomplished, is found to be peculiarly sensitive. The ethmoidal cells are evidently congested, and the os planum tender. The condition of the nasal mucous membrane is one of intense inflammation, which has involved the submucous connective tissue, if not the bone itself. The parts are often in an atrophic state.

In one case the complaint of general cephalalgia and *clavus* over the right parietal eminence was noted. The nasal disease was confined to the middle turbinated bone of the corresponding side, and was associated with excessive sensibility of the parts. Moderate but persistent bleeding occurred from an ulcer on the corresponding side of the septum.

A lady who had been for years suffering from recurrent headaches found not only that the attacks came most frequently when she was suffering from exacerbations of the nasal distress, but that they might also ensue upon emotional excitement, overwork, or upon prolonged or too free menstruation.

Diagnosis. The headache of catarrh, while not fully described in any treatise which has come under my notice, has been mentioned by J. Macculoch.[1] According to this writer, "Periodical catarrh sometimes so predominates over the headache as to appear the sole disease; not unfrequently also being of a severe and durable character, ... also, by what is called sympathy, often affecting the other nostril, and thus entirely deceiving both patient and practitioner into the belief that it is an ordinary catarrh. Such an affection often teases a patient through months or even years, as do all these diseases; and I have little doubt that many of the habitual catarrhs do belong to this hemicrania."

In the "hemicrania" thus referred to, the "pained part is generally small"—and restricted to a point over the brow or to the top of the head. The spot is so small as to be covered by the tip of the finger. We have here a form of *clavus* of malarial disease, which can be distinguished from *clavus* of ordinary catarrh, by its periodicity and by the history of malarial exposure.

From the headaches of cerebral disease the headaches of catarrh are sharply separated. The absence of any symptom referrible to cranial sources, the lack of evidence furnished by the history of the case that the complaint is of central origin, the complete control of the condition by local treatment, easily distinguish the affection last named.

Reflex catarrhal headache can be distinguished from "sick headache" of gastric origin by the absence of gastric disturbance, such as the furred tongue, from the temporal pains of eye-strain, by its persistence after the correction of the errors of refraction, and, with less exactness, from neuralgia of the head by exclusion of the rather multiform causes which are found to constitute this condition. Of necessity, it is possible to have a neuralgia of the variety last named or a condition following ciliary strain, as well as dyspepsia, in the same group of symptoms. With a single exception, it has so happened that I have never met with cases in which such associations existed.

[1] In THE MEDICAL NEWS of January 30th an interesting discussion appeared on "Reflex Symptoms in Nasal Affections," as reported from the Proceedings of the New York Academy of Medicine. The paper herewith presented was written before the discussion referred to took place. It is noteworthy that the general character of the affections described has received at the hands of observers working independently of one another essentially the same elucidation.

[2] A probe passed in the nose, so as to enter the space defined between the inferior turbinated bone and the outer wall of the nose, often excites a sensation which is referred to the region of the lachrymal sac.

[1] Marsh Fever and Neuralgia. London, 1828. ii, 39, 44

The diagnosis of catarrhal headache can be made by noticing the effects of pressure upon the inner wall of the orbit. If it be observed that the characteristic pain ensues when this surface is thus disturbed it is a proof that the pains are not induced by causes *extra limital* to the nose.

The headaches of lithæmia can be distinguished from those of catarrh not only by the tests for uric acid deposit, but, as a rule, by the general appearance of the patient. The sufferer from any of the forms of chronic nasal catarrh never enjoys average good health and does not present the robust aspect of many subjects of lithæmia.

It has been seen that when the headache is persistent it may become a cause of nervous prostration. This event is the more likely to occur in those patients who, from a variety of reasons, are already debilitated and in those who are especially susceptible to the depressing effects of pain. Such phases of the general subject have the same clinical value as tinnitus aurium or illusion in disturbing the mental balance. A person predisposed to hysteria, to hypochondriasis, or to melancholy, will find in the headache an excuse for the general complaint. Oftentimes the nasal disease offers the single local obstacle to successful treatment.

In one case the headache was coincident with a true neuralgia. The patient distinguished between the affections by the catarrhal headache being constant while the neuralgia was intermittent. The former proved to be the more amenable to treatment.

The application of solutions of the hydrochlorate of cocaine is often followed by headache and insomnia. This condition, which may receive the name of the *cocaine headache*, can be detected by the absence of exact reference of the pain to limited regions of the head and by the fact that the pain is always a sequel of the use of the drug.

The rheumatic headache differs from the catarrhal in the absence of the temporal throbbing, and of the elevation of the temperature of the scalp. The pain of rheumatism ordinarily involves the temporal and the masseter muscles.

Megrim is apt to induce injection of the conjunctival vessels, and to excite subjective visual phenomena. It is besides periodical, and the hereditary character of the affection is more pronounced than in the headache of catarrhal origin.

The so called "nervous headaches" as distinguished from the headache of neurotic subjects (*q. v.*), are associated with general prostration, and are commonly coincident with the menopause.

Perhaps the best evidence of the limitation of catarrhal headache is determined by what Marshall Hall has called the therapeutic aid to diagnosis. The catarrhal headache disappears when the nasal catarrh is cured.

Etiology. Cases of catarrhal headaches which are reflex in nature, are far more numerous than either the neurotic or inflammatory.

Unless the cribriform plate and the upper portions of the lateral masses of the ethmoid bone be seriously involved, either by malignant growths or by necrosis, the meninges of the brain do not suffer in any of the affections to which the nasal chambers are subject. Even the traumatic causes of meningeal inflammation, which may be referred to the nose, are very rarely met with in private practice. It may be broadly asserted that the headaches of nasal disease are not of meningeal origin, but, as a rule, are reflex in nature. A great number of the paths of clinical reflex symptoms are conjectural, and it would be a fruitless task to endeavor to set down, with any show of accuracy, the directions taken by the afferent and efferent nerves in producing from a peripheral irritation within the nose a painful sensation in the head. Catarrhal headache is best considered, therefore, entirely from the clinical standpoint. It is a curious circumstance that the reference of a transient pain to the teeth, or to the roof of the mouth, as well as the occurrence of suffusion of the conjunctiva and the flow of tears, which so commonly ensue upon surgical interferences in the nasal chambers, do not often find a place among the conditions complained of in the study of catarrhal headaches, excepting in the neurotic form of the so-called "hay fever." I have sometimes been induced to believe that the headaches might be vaso-motor reflexes, and be confined to the great meningeal artery and its branches, but this position cannot be maintained.[1]

Special stress must be laid upon the compression of the anterior end of the middle turbinated bone. If the pain is referred especially to the side of the nose at about the level of the tip of this bone, and extends from this point to the various parts of the head which have been enumerated above, it may be said to be due to the squeezing of the tip between the walls of the nose. The vertex pain is frequently associated with pressure of the entire bone against the septum. Such extensive compression impairs the vitality of the septum, and an acquired ulceration of the septum (if not actual perforation) is apt to occur at the middle of the triangular cartilage.

While it must not be supposed that disease of the middle turbinated bone, of necessity, creates a reflex pain in the head, yet the existence of such a pain aids the observer in locating the lesion. All things remaining the same, the presence of a broad middle turbinated bone, the covering membrane of which is in a state of chronic inflammation, and which is tightly wedged between the lateral and the median walls of the nasal chamber, will predispose the subject to attacks of cranial pain.

[1] Reflex headache may have its origin in the pharynx. At least the symptoms disappear upon the relief of the pharyngeal distress. As is well known, pharyngeal disease is often a sequel of nasal disease, and the congested state, which creates the sensation of fulness and pain in the pharynx, may also cause the pain which is referred to the head. A striking example of this complaint was observed by me in the person of a lady, the wife of an army officer, who had spent several years in the high, dry altitudes of the Rocky Mountain range. When first seen, she had just recovered from an attack of neuralgia of the spine. The pharynx was the seat of deep-seated infiltrations which were accompanied by a sense of fulness and of a choking sensation. Conversation was sustained with effort, while reading aloud was painful, and in a short time impossible. After the pharyngeal symptoms subsided a disposition to attacks of "sick headaches," which she had had for many years, to the surprise of the patient, disappeared. No complaint at any time had been made of the nose, and certainly no evidence of disease in the nasal chambers was apparent.

THE NEUROTIC HEADACHE.

By the neurotic headache, when seen in connection with catarrh, may be understood that state of the system in which a very moderate extent of local nasal or pharyngeal disease excites numerous and inconstant symptoms which cluster about the region of the head and throat. In a typical instance of the kind, the patient—a highly neurotic person—complained of a pain in the throat and ears, in the head, and back of the throat, of a dryness in the roof of the mouth and the nostrils, and of a parched feeling in the eyelids. At another time these inexact symptoms were supplanted by a sensation which was described as "drying the head up." It is evident enough that these complaints cannot be said to constitute a true headache. And yet it is of practical value to remember that the patient was greatly improved by a course of local treatment to the nasal and pharyngeal mucous membrane, at the same time due regard was given to the removal of the causes which had induced the prostration of the nervous system.

It is at first sight a fact suggestive of the neurotic basis for the entire group of catarrhal headaches, that the subjects, for the most part, are females. I have notes on three cases only of headache occurring in the persons of overworked merchants. One of these gentlemen was, at the time he came under my observation, a sufferer from an advanced form of pyrrhorrhœa alveolaris. He was, also, a subject of headache of a grave form. It was not a temporal variety of the complaint, and did not appear to be aggravated by the moderate amount of nasal disease which was coincident with the state of the gums.

I have not hesitated to include the majority of the cases under other heads, and to reserve for the neurotic variety those cases which exhibited an amount of local disease which, in my judgment, was not sufficient to account for the symptoms. Perhaps a safe predicate to explain the facts is to be found in the relatively larger number of instances of chronic nasal catarrh, which come under notice in private practice, in females than in males.

HEADACHES OF INFLAMMATORY ORIGIN.

Catarrhal headaches of inflammatory origin I have never seen, except in acute congestion or inflammation of the frontal sinus. The pain is of high grade, and is, as a rule, confined to one side. In the cases I have studied there has been no elevation of the temperature of the body, and the attacks have subsided after the application of leeches.

Under the heads of *prognosis* and *treatment* little is required to be said. It is evident that if the premises assumed above be correct, that the catarrhal form of headache will continue until the local cause is removed.

All things remaining the same, the patient can be assured that the distress can be relieved by a system of local treatment. The relief is quickly attained when the diseased structures are limited to small patches of the nasal mucous membrane, but is, on the other hand, when the surfaces are extensive, reached only at the end of a long and tedious course of local treatment. I recall, in this connection, a case of a young lady, who came under my care against the advice of others who thought that, as a result of the serious impairment of the general health, the rest treatment should precede the ordeal of cautery treatment to the nose, yet who advanced steadily in improvement under the treatment, in spite of a headache of the gravest type.

The treatment is in no way modified from that which I have advocated for the treatment of chronic nasal catarrh. The diseased structures must be removed as thoroughly and as rapidly as is consistent with all the facts, and in obedience to the general principles and practice of surgery. In two cases marked relief followed the retention of obturators of vulcanite in the spaces left by perforating ulcers of the septum.

In conclusion, it may be said that, while the headaches of catarrh are not absolutely outlined from the numerous forms of cranial distress into which the brow, the temple, the vertex, and the occiput may be involved, it is worthy of a position as distinct, and of a grade as important, as that allowed the headaches of eye-strain, or even of megrim itself.

A NOTE ON LEWININ, THE NEW LOCAL ANÆSTHETIC.

By N. A. RANDOLPH, M.D.,
INSTRUCTOR OF PHYSIOLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

In the editorial columns of The Medical News of February 13, 1886, there is given a brief account of the physiological properties of a semifluid resin obtained from the root of *Piper methysticum*.

In the method employed in obtaining it (extraction by petroleum-ether) two resinous bodies are obtained, the resin of lesser density only being efficient. To this body Lewin, its discoverer, applies in his original communication the rather cumbrous title of "Alpha Kawa Resin," for which I have ventured to substitute the name lewinin, as above.

Although I have not been able to obtain, in my experiments with the extract in question, results as marked as those presented by Lewin, several points of clinical interest have arisen, which will, I think, be of interest.

When the semifluid lewinin is placed upon the tongue, there is a momentary burning sensation with increased salivary secretion, followed by a local numbness, which, while extremely superficial, is recognizable for more than an hour. Some pallor of the mucous membrane at the point of application is noticeable. I have several times swallowed about five grains of the extract thus placed upon my tongue without appreciable results other than those noted.

Lewinin is too painfully irritating to apply in practice to the human conjunctiva, but it is my belief that, by the previous application of cocaine, the lewinin in solution could be instilled into the conjunctival sac, and produce its characteristic effect of prolonged local anæsthesia before the more temporary effect of the former drug had passed off.

The extract will probably be of service in dental

practice, as its application certainly mitigates the discomfort of operations on the teeth of those suffering from sensitive dentine.

The most marked practical benefit, however, to be expected from the use of the drug is in cases where only a relatively superficial anæsthesia is desirable. Thus, as would have been expected, the drug is of value in rhinological practice.

Dr. Harrison Allen, to whom I handed a fifty per cent. alcoholic solution of lewinin, kindly reports that, in practice, he has found a number of cases of nasal trouble in which the drug could not only be availably substituted for cocaine, but in which its action was more satisfactory.

The extract just discussed was prepared for me something over a month ago by Mr. Llewellyn, of this city, and was, I believe, the first specimen of the drug produced in this country.

Physiological Laboratory of the Univ. of Penna.,
March 10, 1886.

MEDICAL PROGRESS.

Retraction of the Penis.—In the *Vratch*, No. 26, 1885, p. 423, Dr. A. A. Ivanoff, of Büzülük, Samara Government, publishes the following singular case. A strongly built, generally healthy, married peasant, aged twenty-three years, came to a local hospital, evidently laboring under some mental trouble, and stated that "something had broken down below" with him. On stripping the patient a string came to light, one end of which encircled the retroglandular sulcus of the penis, while another end was fastened round the lower part of the left thigh, the member being thus kept down in a tightly stretched case. The patient did not allow the author to touch the arrangement, and himself untied the femoral end of the string. On gradual relaxation of the latter, the penis slowly retracted, and ultimately disappeared altogether under the pubic arch, leaving only a navel-like depression. The part could be got back only by traction on the string. According to the patient's narrative, everything had been in due order up to five days previously, when, having got up to micturate in a dark night, he was utterly frightened at being unable to feel any trace of his penis. Having managed somehow to pass urine, he, after prolonged manipulations, at last succeeded in getting it back, and secured it in the way mentioned. Except slight perineal pain, no other symptoms, and no possible cause whatever for the retraction could be detected. To allay the pain and the patient's distress, bromide of potassium, in ten grain doses every three hours, was given. On the next day the penis remained unretracted for an hour or more. Six days later, retraction disappeared, and did not return. Dr. Ivanoff has not been able to find another similar instance recorded in medical literature.—*London Medical Record*, February 15, 1886.

Treatment of Vascular Tumors.—Dr. Floriani has successfully employed the following mixture in six cases of telangiectatic tumors:

Mercuric bichloride	3 parts.
Collodion	20 "

The liquid is applied with a fine brush to the seat of the tumor, four coats being thus superimposed, and care being taken that each is thoroughly dry before the next is applied. A crust is shed in four days and the fluid again applied as before, until the tumor has disappeared. This treatment is described as absolutely painless; and the resultant pink coloration soon disappears. It is applicable only to flat swellings—*i. e.*, those not much more than a line in thickness.—*Gaz. Hebd. de Montpellier*, Feb. 6, 1886.

A New Mode of Administering the Phosphates.—Dr. Cano Quintanilla writes in *El Dictanem* that the phosphates, which theoretically ought to give good results, do not always do so, because of their insolubility. He says that this difficulty can be overcome by making use of cows or goats. He gives two ounces a day of phosphate of lime, mixed in the feed, to a cow, or five drachms to a goat In a few days the animal's milk becomes much thicker, and is found to contain a large amount of phosphate of lime in a soluble state. This milk may then be given to patients when the phosphates are indicated. The author has employed this method with success in rachitis.—*New York Medical Record*, February 20, 1886.

Experimental Production of Aortic Insufficiency.—François Franck has studied the immediate and remote effects of artificial lesions of the semilunar valves, produced in a large number of animals by means of special instruments introduced into the right carotid. In those animals which survived the operation, the arterial tension, which at first fell, rose again; compensatory hypertrophy ensued and vascular activity increased. According to Franck, the excessive cardiac action was due, not to the aortic regurgitation, but to the irritation of the region of the semilunar valves, inasmuch as very slight lesions or even superficial excitation of this region produces the same results. The gravity of the syncope observed—aortic insufficiency—is ascribed to the prolonged distention of the heart and to the depression of the encephalic circulation.—*Gaz. Hebd. de Montpellier*, Feb. 13, 1886.

On the Poisonous Substances Extracted from Edible Mushrooms.—Roux and Houdé have been able to extract from mushrooms, after putrefaction, several poisonous bodies of an alkaloidal nature, to which they give the name *cryptomaïnes*. Both of them partook of the mushrooms, when freshly gathered, employed in their experiments without any ill effects. The chemical process used for the separation of these bodies is not described. The length of putrefaction has a great influence upon the quantity of these substances that can be obtained. Thus the greatest yield is obtained after the mushrooms have putrified for three or four days, whilst at the end of two months not a trace of a poisonous alkaloid remains.

The *cryptomaïnes* are either liquid or amorphous substances of a slightly dark color, of a bitter taste, and have a very strong odor, resembling that of the plug of a tobacco pipe. Their reaction is strongly alkaline, and with acids they yield salts not easily crystallizable. The mixed substance obtained can be divided into three, a part soluble in ether, another in chloroform, and a third in amylic alcohol. They yield a white pre-

cipitate, with a solution of iodine in potassium iodide, and a maroon crystalline precipitate with platinum tetrachloride reactions given by the alkaloids. Ptomaines, substances obtained by the putrefaction of animal substances, are said to differ from the ordinary alkaloids, with the exception of morphine and atropine, by reducing potassium ferricyanide to potassium ferrocyanide, which then gives a precipitate of Prussian blue with ferric chloride. Cryptomaines exhibit the same reaction. A dose varying from two to twelve centigrammes (0.3–1.8 grs.) of four products was administered subcutaneously to four guinea-pigs, with a uniformly fatal result after a variable time which never exceeded seventeen hours. The portion soluble in ether produced no symptoms until four hours afterward, when the gait became tottering, and the animal did not make any signs of sensation when pinched; death resulted five hours after the injection. The portion soluble in chloroform produced convulsive seizures, short and jerky respirations, paralysis of the hind limbs, and finally death five hours afterward. The amylic alcohol portion caused death in fifteen hours, without any special symptoms. The resinous matters caused feeble rapid respiration, and death in fifteen hours.—*Manchester Medical Chronicle*, February, 1886.

Ptomaine of Stale Fish.—Last year several cases of poisoning by stale sturgeon occurred at Kharkov; five terminated fatally. Anrep, studying the cause of these accidents, showed that a ptomaine was the efficient cause, and could be extracted from the fish, as well as from the contents of the stomach and intestines, the liver, blood, brain, and urine of the victims (*Revue des Sciences Médicales*, No. 53, p. 66). The alkaloid differs from the ptomaines of Brieger. It is an amorphous, highly alkaline body, forming soluble salts, and extremely toxic. Caustic agents and boiling destroy the toxic power of the alkaloid, which has two chief characters—viz., its fixity whether in the solid state or in ethereal solution, and the slowness of its reducing action on the blood. The hypodermatic injection of a quarter of a milligramme in a dog causes vomiting, mydriasis, general prostration, and slowness of the movements of the heart. In the rabbit the action is much more rapid, and the above-mentioned dose causes death in two hours. The march of the symptoms in the poisoned individual is in harmony with the results of physiological research, and indicates, according to Anrep, that the poison first paralyzes the spinal cord, then the medulla oblongata, and acts probably also upon plain muscular tissue.—*Lancet*, Feb. 20, 1886.

Prophylaxis of Gonorrhœa.—Haussmann, following up the undoubted favorable results of prophylactic instillations for the prevention of blenorrhœa of the conjunctiva in the newborn, advises the injection of a two per cent. solution of nitrate of silver into the urethra after a presumably unclean cohabitation. Ten drops of the solution suffice to destroy the gonococci; the injection should be made, however, within a quarter of an hour after exposure.—*St. Louis Medical Review*, Feb. 27, 1886.

Changes in the Cardiac Ganglia in Infectious Pneumonia.—Vinogradoff, in a communication made before the First Russian Medical Congress, states that in infectious pneumonia certain changes are to be noted in the intracardiac ganglia situated on the hinder surface of the heart and between the ventricles. The nuclei disappear, and the ganglia themselves become cloudy, swollen, and granular. The change noted in the ganglia is usually out of proportion to that observed in the heart muscle.—*Wiener Medizinische Presse*, Feb. 7, 1886.

Milk-diet in Chronic Nephritis.—In view of the fact that milk-diet had been emphatically recommended by many observers (Senator, Sparks, and Bruce, etc.), Dr. A. S. Trubatcheff (*Vratch*, No. 46, 1885, p. 763) undertook a series of comparative observations on four patients with chronic nephritis (three with the parenchymatous, one with the interstitial form), each of whom received ordinary hospital diet during one period, and either mixed or pure milk-diet during a subsequent period of equal duration. The results were as follows: 1. An exclusive milk-diet invariably led to a marked increase of the daily and percentage amount of albumen in the urine. 2. The patient's weight fell considerably, without any marked change in his dropsical state. 3. A mixed milk-diet also led, in the majority of the cases, to an increase in the daily and percentage amount of albumen excreted. 4. Neither pure nor mixed milk-diet produced any marked increase in the amount of urine. The author is now studying the assimilation of protein by nephritic patients receiving milk-diet, which study will enable him to settle the question of "good or harm" of the treatment.—*London Medical Record*, February 15, 1886.

Primitive Endocarditis in Soldiers.—In a paper thus entitled, Fournier presents the following conclusions:

1. Primitive endocarditis, a very rare affection in the ordinary conditions of life, tends to become frequent in the military profession.

2. It is developed in this class under the influence of cold or of the fatigue of long marches.

3. It should be immediately opposed by energetic treatment in order to obviate the formation of fibrinous deposits.

4. The most advisable treatment consists in the application of wet cups to the cardiac region, followed by flying blisters. This treatment is followed by a very rapid amelioration of the condition.—*Revue Médicale*, Feb. 13, 1886.

Effervescent Enemata in Intestinal Obstruction.—Dr. J. A. Vondrodsky, of Irkutsk, details a case (*Proceedings of the Eastern Siberian* [*Irkutsk*] *Medical Society*, 1885, p. 100) of intestinal obstruction of five days' duration, where, after complete failure of purgatives and large enemata, the author resorted to effervescent injections repeated at intervals of several hours. After a few enemata, the patient passed a liquid stool, tympanites and fecal vomiting ceased, and complete recovery followed. The enemata consisted as usual of two injections successively administered, one of them being made of a solution of three teaspoonfuls of tartaric acid in a glassful of water, and another of a solution of four teaspoonfuls of bicarbonate of soda in the same quantity of fluid.—*London Medical Record*, January 15, 1886.

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SATURDAY, MARCH 13, 1886.

OPERATION FOR TUMORS IN THE BLADDER.

In The Medical News of August 25, 1885, we called attention to the statistics of Dr. Stein, of New York, published in March of that year, in regard to operation for the removal of tumors in the bladder. Since that time a number of contributions to the literature of the subject have appeared to bear witness to the attention it has attracted. From some of them we draw the materials for further remarks upon it. It need hardly be said that it is the almost unanimous opinion of surgeons, that tumors of the bladder are comparatively easy of diagnosis, and that operative interference for their removal, or for the amelioration of the distressing symptoms to which they give rise, is in most cases proper.

Since the appearance of the paper of Bazy (*Annales des maladies des organs génito-urinaires*, Oct. 1883), the most important studies of the subject have been the thesis of Pousson, "De l'intervention chirurgicale dans le traitement et le diagnostic des tumeurs de la vessie dans les deux sexes" (Paris, 1884), and the lectures of Sir Henry Thompson, "On Tumors of the Bladder," now published in book form. Of the latter it is not necessary to say much, as the author's views are so well known; although we may remark that his recent conversion to the suprapubic operation of lithotomy may be expected to lead him to a better opinion of the plan of removing tumors by the same method than he expressed in his lectures. The thesis of Pousson discusses the subject indicated in its title with great thoroughness, and his conclusions—which may be said to be those now most generally held—may be epitomized as follows: Benign neoplasms in the bladder are more common than malignant growths. Both are oftenest situated at the base of the bladder. Both are apt to be pedunculated. Ganglionic and general involvement are rare. Inflammatory lesions of the bladder are a late manifestation, and are exceptional; the same is true in regard to the kidneys. The diagnosis rests upon rational and physical signs, of which the former are usually the more helpful. When palpation through the abdominal wall, or through the wall of the rectum, discloses the presence of a tumor, it is more apt to implicate the walls of the bladder and to be difficult of removal; when it does not, the new growth is more apt to be limited to the mucosa and to be easy to remove. Pousson rejects the *boutonière* as a method of diagnosis.

As to operating, he holds that it is permissible when the diagnosis is certain, and when the tumor is small and pedunculated and not causing any great trouble; it is obligatory when the tumor is pedunculated, sessile, or unpalpable, whenever grave accidents occur, such as pain, hemorrhage, frequent micturition, or retention of urine; it is contraindicated in very early life, when the neoplasm has become generalized or widely extended, when the bladder is extensively adherent to the surrounding parts, or when there is serious disease of the kidneys. On the other hand, severe cystitis or hemorrhage does not contraindicate the operation. Indeed, the bladder may be opened when hemorrhage is actively going on, with the expectation that this will make it easy to control the hemorrhage.

As to the method of operating, Pousson advocates dilating the urethra in females, and performing suprapubic cystotomy in males. These opinions rest upon a careful study of the details of fifty-eight cases, reported in the twelve years preceding the preparation of his thesis.

Admitting the general correctness of Pousson's conclusions, it may be said that his strong preference for the suprapubic operation indicates the ardor for the method which now characterizes the French surgeons, and which stands in marked contrast to the rejection of it which was so universal ten or twelve years ago. The English have not yet come to prefer this method to the perineal operation, with which the names of Mr. Whitehead and Sir Henry Thompson are so inseparably connected; and American surgeons, with a few exceptions, may be said to reflect the opinion of the latter. On the continent, too, the perineal operation is not without supporters. Dr. Riedel, in a paper entitled "Zur Operativen Behandlung der Blasenpapillome," published in the *St. Petersburger med. Wochenschrift*, of May 18, 1885, says that, while the suprapubic operation gives a better opportunity to recognize the exact size and relation of a tumor in the bladder, the perineal operation is safer.

Wittelshofer, in a paper entitled "Die Tumoren

der Harnblase," in the *Wiener med. Wochenschrift*, Nos. 34, 35 and 36, 1885, says that a perineal incision helps in the performance of a suprapubic operation, and advises an exploration through the former as a first step, and having recourse to the suprapubic operation only when removal by the perineal route seems unadvisable.

Even in France, Sabbatier, in a paper entitled "Revue critique sur 47 cas de tumeurs de la vessie, etc.," in the *Revue de Chirurgie*, July and August, 1885, recommends operating by the perineal route for benign, small, and solitary tumors situated on the trigonum vesicæ, and reserves the suprapubic operation for malignant, large, multiple, and diffuse tumors, and for those situated on the upper hemisphere of the bladder. Dr. Bazy, in the paper before referred to, expresses a preference for the suprapubic operation.

From this it will be seen that the suprapubic operation may be said to occupy a position which is similar to that called "advanced" in political affairs, while the perineal operation is supported by those who may be compared to the "conservatives." It is too soon for a final judicial opinion as to the superiority of either of these methods. Doubtless there is much to be said in favor of each. But, for the present, the bolder surgeon may feel justified in choosing the former, while the more cautious will with propriety adhere to a method which seems to have less risk connected with it, even if it does not offer so much in the way of precision and completeness in operating.

SYDENHAM ON HYSTERIA.

The words hysteria and hysterical are becoming less frequent in medical writings. Many now use the terms neurasthenia and neurasthenic as substitutes, and, indeed, they are often synonyms. The word hysterical applied to their disorder would be regarded by some patients as a disgrace if not an insult, and all respect for, and confidence in their medical attendant would be lost, while if he tells them they have neurasthenia their minds rest in sweet peace, for this can be no vulgar disease; the term seems both learned and euphemistic.

There is, too, another advantage in replacing hysteria by neurasthenia, for the former carries in its etymology a falsehood, while the latter expresses a truth, and is in some good degree a just guide to the necessary therapeutics.

And yet is there not in the multiplication of medical terms, or in the application of words, danger of complicating our science and confusing the practitioner? Must we magnify simple associated phenomena attending a disorder into disease? For example, even if we must have neurasthenia and neurasthenic, why should spinal irritation be given a place in the catalogue of diseases? It is usually one of the many manifestations of hysteria, and hence, if looked upon as a disease of itself, the other phenomena of the disorder may escape proper attention; and, on the other hand, if it is neglected, and those only treated, the cure also fails. Divide and conquer may be an appropriate maxim in the acquisition of medical knowledge; but in binding up the separate facts thus acquired, in reducing them to order, in forming them into systems, and in the deduction of general laws, we may multiply too much, make arbitrary distinctions, like the multiplication of petty European principalities of a few square miles, with purely arbitrary or conventional boundaries. However this may be, we turn back for a moment from the medical science of to-day, rich in observations, in discussions, and in verbal contributions, to the simple description of hysteria given more than two hundred years ago by one of the wisest, most careful, and conscientious of English physicians, Thomas Sydenham.

In considering the causes of the disorder, Sydenham gave great and deserved importance to debility, and to powerful mental impressions; he utterly rejected its uterine origin, a notion which had been held for centuries and of which its name is significant, but sought this in "a confusion of spirits," too many of them "collected in a crowd" in one part, and, therefore, that part and also the part from which they have been withdrawn suffer. How graphically in the following passages he describes the multiform manifestations of hysteria! "A day would scarce suffice to reckon up all the symptoms belonging to hysterical diseases, so various are they and so contrary to one another, that Proteus had no more shapes, nor the chameleon so great a variety of colors. And I think Democritus was pretty right (tho' he mistook the cause of the disease) when he wrote in an epistle to Hippocrates, that the womb was the cause of six hundred miseries, and of innumerable calamities. Nor are they only very various, but also irregular, that they cannot be contained under any uniform type, which is usual in other diseases, for they are, as it were, a disorderly heap of phenomena, so that it is very hard to write the history of the disease."

The greater frequency of "hysteric disorders" in women than in men, he explains by saying that "kind nature has bestowed on the former a more delicate and fine habit of body, having designed them for an easy life, and to perform the tender offices of love."

Sydenham describes the frequent manifestation of the disorder, as the so called "mother fits," the copious and rapid secretion of urine, "clear as rock-water," the backache, the pain in the head, especially the *clavus hystericus*, hysterical vomiting, retention of urine, salivation, fits of weeping, etc.

In referring to fits of weeping, he states that men are rarely subject to them, but then describes the case of a gentleman who had an attack of fever, to whom he was first called when he was convalescent; the patient had been bled, purged three times, and forbidden the use of flesh. Sydenham states that sitting down and conversing with him, "I presently took notice that his lower lip was thrust out, and moved frequently, as froward children used to do when they prepared for crying, and then wept so violently that I scarce ever saw the like, and with such deep sighs as were almost convulsive." The cure was effected by the moderate use of animal food and of wine.

Unfortunately his first treatment of all cases was not so wise. Misled by his theory that "the ataxy of the spirits has vitiated the humors," he held it "fit first to lessen these humors so corrupted, by bleeding and purging, if the patient has sufficient strength;" but he very frankly states that these patients are thus for the time made worse. After the bleeding and purging, or immediately in patients too weak to bear this treatment, chalybeates and vegetable tonics were given. He states the following very interesting fact, which may have been the germ of recent treatment of neurasthenic disorders by milk: "Some, however, that have been troubled a long while with hysterick diseases, and even such as have frustrated all the endeavors of physicians, yet have recovered by dieting themselves for some time only with milk."

INTRAPARENCHYMATOUS INJECTIONS IN PHTHISIS.

The value of intrapulmonary injections in phthisis has not yet been determined. Although satisfactory results have been reported by Pepper and others, the method has not come into general use. Various substances have been employed, such as iodoform, carbolic acid, and iodine, and now Gouguenheim reports, in *Gazette Hebdomadaire*, No. 3, 1886, the results obtained in 33 cases with solutions of corrosive sublimate varying in strength from 1 : 500 to 1 : 2000. The injection was made with an ordinary Pravaz syringe, the contents of which were thrown directly into the affected portion, or into the cavity. No unfavorable symptoms followed in any case, and, as a rule, the injections were painless. The chief improvement noticeable was in the local signs, diminution of the râles, and lessening of the expectoration, but the general condition was not benefited. Twenty-one cases showed these favorable results, ten died, and two discontinued the treatment. In three of the fatal cases there were indications in the lungs that the injections had done good.

In the discussion which followed the reading of the paper at the Société Médicale des Hôpitaux, Dieulafoy stated, as the outcome of his observations, that he had never noticed any local or general improvement follow intraparenchymatous injections, and in the fatal cases he had not seen changes in the lesions which could be attributed to the beneficial effects of the remedy.

There are two conditions in phthisis in which this mode of medication may prove serviceable. In the early stage, when the disease is localized at an apex, and the tubercles are beginning to soften, repeated injections of the sublimate solution may check the advance of the process, and promote the indurative changes essential to a cure. Secondly, in the advanced stage, when there are large cavities which require disinfection, this mode of treatment is most rational, and will doubtless be more generally employed than it has been heretofore. The purification of the stinking contents of some cavities by inhalations is a hopeless procedure, and in such cases the injections will be found to answer the purpose.

THE PANACEA OF MODERN GYNECOLOGY.

Winckel, in his *Lehrbuch der Frauenkrankheiten*, which has just been published, speaks of laparotomy as the panacea of modern gynecology. Such conservatism is not in correspondence with the spirit of the times when so many speak of a "Battey," or of a "Tait," as a frequent event, and regard extirpation of the ovaries, or of the tubes, or of both, as an operation the indications for which are often presented and are unequivocal. Possibly, however, the voice of conservatism ought to be heard in this, as well as in some other departments of operative gynecology. If the history of some at least of those whose sound ovaries have been removed were given months, or a year or two after the extraction, it would be found that no good had resulted. Winckel regards the time as not far distant when the extirpation of the healthy ovaries for the cure of dysmenorrhœa, ovaralgia, epilepsy, hysteria, and mental disorders will be considered in the same light as clitoridectomy, except that the latter was much more innocent and harmless.

PERSONAL NOMENCLATURE IN MEDICINE.

The application of the names of individuals to discoveries, to instruments, or to operations is liable to cause confusion in knowledge, and in some cases injustice. Names of objects ought to be, so far as possible, descriptive, and not for personal glorification, or for the perpetuation of an individual's name.

We are more than ever impressed with this truth from reading a recent paper by Doléris upon shortening the round ligaments, an operation which is generally known as Alexander's. In the paper referred to, the author very clearly proves that the operation in question was first suggested in 1840 by Alquié, that Aran in his treatise on diseases of

women, 1858, spoke of Professor Alquié's proposed operation as one which if not impracticable, at least presents serious dangers and difficulties, and stated that it was first done by a Belgian surgeon, Dr. Deneffe, twenty years ago; Deneffe's attempt failed.

Doléris quotes from Zeiss's article in the *Centralblatt für Gynäkologie*, the following remarks in reference to the matter: "When one wishes to apply to medicine the methods employed in zoölogy, that is to say, giving new animals the name of their discoverers, one ought at least to choose the name of him to whom really, by just, uncontested right, belongs the merit of the discovery. What a delightful future for the struggle for priority!"

In some few instances the vanity or the quackery of the inventor or the discoverer, but in more the admiration or the sycophancy of others, furnishes the explanation of the personal nomenclature which is becoming so common in medicine.

REVIEWS.

The Technology of Bacteria Investigation. By Charles S. Dolley, M.D. 12mo. pp. 263. Boston: S. E. Cassino & Co., 1885.

With the rapidly growing literature pertaining to the bacteria and their relation to disease—a literature which is already assuming colossal proportions—every facility for gaining a comprehensive knowledge of the cardinal facts regarding recent methods and new investigations with the minimum expenditure of time will be appreciated.

Dr. Dolley's book is an instance of with what success a manual may be produced by careful selection and judicious abridgment—the avowed desire to aid and stimulate American investigators furnishing the incentive.

Divided into three parts, the first is a general survey of the subject announced in the title. Anyone proposing to undertake the practical study of the bacteria, could scarcely do better than give the contents of this section a careful reading.

Part II. consists of a very complete epitome of the special methods recommended in the investigation of particular forms, embracing all the microörganisms for which genetic relations to diseases have been claimed.

The unity of the text—not infrequently the interest of the reader as well—has been preserved by relegating to Part III. all formulæ of which mention is made, the bracketed figures affording ready reference. A reciprocal reference to the appropriate text might have been added to each formula, possibly with advantage.

The discussion of each subject is followed by a list embracing all the important references bearing upon the immediate topic.

Careful examination convinces us that the book is one of real worth, which will find its place on the worktable of those already engaged in bacteria investigations, and which will be especially valuable, as a reliable guide, to those about to enter upon such studies.

SOCIETY PROCEEDINGS.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, February 22, 1886.

The President, S. Weir Mitchell, M.D., in the Chair.

Dr. Harrison Allen read a paper on

THE HEADACHES WHICH ARE ASSOCIATED CLINICALLY WITH CHRONIC NASAL CATARRH.

(See page 288.)

Dr. Carl Seiler said that we all know that there is more or less headache associated with nasal catarrh, but how far exact lesions give rise to these exact pains had not before been described in so many words. He thinks, with Dr. Allen, that the headache of reflex origin is largely due to pressure upon one of the surfaces of the nasal chambers. It is a curious fact, in his experience at least, that in most cases the headache of catarrh occurs on the left side of the head; while, on the other hand, obstruction of the right nostril is much more common than that of the left. He has observed several cases in which the pain was referred to the teeth and to the ear, which, as Dr. Allen has remarked, is very rare. He remembered three cases which came under his notice lately. Two of these patients complained of toothache, or rather of a peculiar pain in the upper jaw, which might be called toothache. After careful inspection by skilful dentists, the teeth were pronounced perfectly sound, and local applications for the relief of the catarrh also relieved the toothache. The third, a lady, complained of intense pain in the left external meatus, quite deeply situated. In this case applications to the meatus had no effect, but the pain was entirely relieved by local treatment directed to the nose. In neither of these three cases was headache present.

Dr. S. Solis-Cohen said that Dr. J. Solis-Cohen had once told him of a book written by a charlatan, who had discovered the connection between nasal catarrh and headache, and had been quite successful in his treatment of such cases. He had not been able to find the reference to this book, but he had come across a reference to a paper in an early number of the *American Journal of Medical Sciences*, vol. v., describing a case of periodical hemicrania relieved by the expulsion of a calculus from the nose. This is referred to only in relation to the history of the subject. As to the thesis itself, his personal experience is not extensive; but he has seen in the practice of Dr. J. Solis-Cohen a large number of cases in which headache was associated with, and frequently dependent upon, diseased conditions of the nasal passages, and in which relief followed the cure of the local affection. He had not before heard the subject presented in the systematized way in which Dr. Allen had treated it, and consequently was not prepared to discuss his classification.

Dr. Harrison Allen said that Dr. Seiler's remark on the connection between earache and chronic nasal catarrh interested him very much. We are not yet in possession of all the facts necessary to explain this connection. He was glad that Dr. Cohen had referred to

the case of nasal calculus. The cases recorded by others were not mentioned in his paper, since he lacked the necessary time thoroughly to look up the literature. He believed that the subject of headache which is found associated with chronic nasal catarrh, has never been separately considered, nor the differential diagnosis between it and other forms of headache presented. It is well known that the majority of headaches are much alike. As stated in the paper, the brow, temporal, vertex, and occiput are so commonly involved in all headaches that patients do not distinguish between the several sources of pain, and physicians themselves may occasionally be so far misled as to fail to determine the exact cause of the ailment. In all obscure cases of distress about the head, the nasal cavities should be carefully examined.

Dr. Charles K. Mills, at the request of Dr. C. P. Henry, of the Insane Department of the Philadelphia Hospital, exhibited

A CASE PRESENTING CATALEPTOID SYMPTOMS, THE PHENOMENA OF AUTOMATISM AT COMMAND, AND OF IMITATION AUTOMATISM.

This patient had been recently admitted to the Hospital, and no previous history had as yet been obtained. He was a middle-aged man, not unintelligent looking, and in fair physical condition. His condition, and his symptoms had remained practically the same during the short time that had elapsed since admission. He remained constantly speechless, almost continually in one position, would not open his eyes, or at least, not widely, would not take food unless forced, and his countenance presented a placid, but not stupid or melancholy appearance. He had, on several occasions, assumed dramatic positions, posing and gesticulating. It had been discovered by Dr. Henry that the patient's limbs would remain where they were placed, and that he would obey orders automatically. The case had been regarded as probably one of katatonia, but in the absence of previous history it was not known whether or not he had passed through the cycle of mania, melancholia, etc., which constitutes this fully developed disease. He had had, since admission, attacks of some severity, probably, from description, hystero-epileptic in character.

Dr. Mills, in exhibiting the patient, first placed his arms and legs, and body and head in various positions, where they remained until he was commanded to place them in other positions. His mouth was opened, one eye was opened and the other was shut, and he so remained until ordered to close his mouth and eyes. In most of these experiments the acts performed were accompanied by remarks by Dr. Mills that the patient would do thus and so as he was directed.

Various experiments to show automatism at command were performed. Dr. Mills, for instance, remarked that the gentleman was a good violin-player, when the patient immediately proceeded to imitate a violin-player. In a similar way he took a leadpencil, which was handed to him, and performed upon it as if it were a flute. He danced when it was asserted that he was an excellent dancer; placed his arms in a sparring position, and struck out and countered on telling him that he was a prize-fighter; went through many of the movements of drilling as a soldier, such as "attention," "facing," "marking time," "marching," etc. He was told that he was a preacher and must preach, and immediately began to gesticulate very energetically as if delivering an earnest exhortation. He posed and performed histrionically when told that he was an actor, etc. He was given a glass of water and told that it was good wine, but refused to drink it, motioning it away from him. He was then told that it was very good tea, when he tasted it, evincing signs of pleasure. During all these performances he could not be induced to speak; his eyes remained closed, or, at least, the eyelids drooped so that they were almost entirely closed. He showed a few phenomena of imitation, as keeping time and marching to the sound of the feet of the operator, etc.

After exhibiting these phenomena Dr. Mills made the following remarks:

This patient is undoubtedly suffering from some form of mental disorder. The case is probably one of those which would be classed under the head of katatonia, although in the absence of a past history I do not think that I am entirely justified in making this diagnosis. In the affection known as katatonia first described by Kahlbaum, and in this country discussed by Hammond, Spitzka, and others, but most ably and fully by Kiernan, alternate periods of mania, melancholia, and, it is said, cataleptoid states are present.

Taking the patient as we find him, I have no doubt several views will be suggested to those present. One of the first thoughts that would suggest itself to anyone is that the man is simulating. This idea, I believe, can be dismissed. He is, so far as we have been able to determine, a genuine case of mental disorder, the phenomena which have been exhibited here this evening constituting an essential portion of the psychical affection. Many here present, however, are trained in the observance of mental and nervous manifestations, and I would like to hear from them as to the nature of the case.

Taking up the phenomena themselves in detail, let us question ourselves as to their nature. Have we here genuine catalepsy? What constitutes catalepsy? What are the pathognomonic symptoms of this ancient but not well-understood affection. I have recently been interested in the subject of catalepsy, and I find some want of clearness in authorities as to its distinctive differential features. Rosenthal and some others would make waxen flexibility the *sine qua non;* in its absence regarding the case as not one of genuine catalepsy. Waxen flexibility and unconsciousness of surroundings, are the two points upon which most stress is laid by the majority of well-known writers. What is to be understood by waxen flexibility? I take it that it is a symptom which shows itself in the following way: A patient's leg, or arm, or fingers, his head, or his trunk, on being placed without command, or without remark, by the operator in any special position, will there remain as long as it is possible under ordinary physical laws for it to continue in that position. Such limb or part can be moulded like wax or lead into every possible shape, and will there remain independently of, or in spite of, commands to the contrary. The true cataleptic patient, according to this conception, is in such a condition as to consciousness that he is not capable for the time being of understanding or of obeying a command. So far as mentality is concerned, he is a genuine "wax

figure." This, in my opinion, is a very rare condition. I have sometimes almost doubted its existence. I have certainly seen very few cases which would answer to the picture which I have tried to draw.

Certainly, waxen flexibility, as I have thus described, is not present, or at least, not always present in this patient. It is true that even when I say nothing, his limbs will sometimes remain in the grotesque positions in which they are placed; but he is not in a strict sense unconscious of what is being done. The very movements of my hand, my appearance, (for these patients do see, although their eyes are partly closed), may in this peculiar frame of mind suggest to him my wishes. I am inclined to think that many of the cases reported as examples of catalepsy are in reality cases which present phenomena analogous to those shown by this man.

These phenomena are those which have for many years been known and described under various names. I well remember, when a boy, attending a series of exhibitions given by two travelling apostles of animal magnetism, in which many experiments similar to those exhibited this evening were performed upon individuals, selected apparently at haphazard from a promiscuous audience, these persons having first undergone a process of magnetizing or mesmerizing. In the experiments of Heidenhain, of Breslau, upon hypnotized individuals, many similar phenomena were investigated, and described and discussed by this physiologist under the names of "automatism at command," and "imitation automatism." The hypnotized subjects for instance, were made to drink ink supposing it to be wine; to eat potatoes for pears; to thrust the hand into burning lights, etc. They also imitated all manner of movements possible for them to see, or to gain knowledge of by means of hearing, or in any other way. They behaved like imitating automatons, who repeated movements linked with unconscious impressions of sight to hearing, or with other sensory impressions. It was noted in the experiments of Heidenhain, that the subjects improved with repetition. I am inclined to believe that the patient before us performs better to-day than he did yesterday, or the day before. His manifestations, although, in my opinion, not simulated, have been improved somewhat by practice. Charcot, Richer, and their *confrères*, have made similar observations on hysterical and hypnotized patients, which they discuss under the name of "suggestion."

Hammond (*Med. and Surg. Reporter*, vol. xlv., Dec. 10, 1881) suggests the term "Suggignoskism" from a Greek word, which means "to agree with another person's mind," as a proper descriptive designation for these phenomena. In referring to persons said to be in one of the states of hypnosis, he says that he does not believe that the terms hypnotism and hypnosis are correct, as, according to his view, the hypnotic state is not a condition of artificial somnambulism; the subject, he believes, is in a condition where the mind is capable of being affected by another person, through words, or other means of suggesting anything. In the clinical lecture during which these opinions were expressed, Hammond is reported to have performed on four hypnotized young men experiments similar to those which have been exhibited this evening upon this insane patient. His subjects, however, were not cases of insanity. A bottle was transformed by suggestion into a young lady; sulphur was transmuted into cologne; one of the subjects was bent into all sorts of shapes by a magnet; another was first turned into Col. Ingersoll and then into an orthodox clergyman, etc. In reading such reports, and in witnessing public exhibitions of the kind here alluded to, one often cannot help believing that collusion and simulation enter. Without doubt, this is sometimes the case, particularly in public exhibitions for a price. What has been shown here this evening with this man mentally afflicted; what has been shown again and again by honest and capable investigators of hypnotism—prove, however, not only the possibility, but the certainty of the genuineness of these phenomena in some cases.

Dr. H. C. Wood did not see that this case is closely allied to catalepsy. He had never seen a case which he considered genuine, thorough catalepsy. He had seen a number of cases occurring in the somnolent state of cerebral syphilis and various other disorders, in which there is a tendency to catalepsy—of course, using the term in its narrow sense. He believed this to be simply a case of automatism at command. He noticed when Dr. Mills raised the hand, that the man moved his hand rather by his own effort than by permitting it to be lifted by the doctor. This shows that the man interprets the muscular movement just as he interprets the command to march. The apparent catalepsy is simply the result of the command. He had seen exactly the same condition in a child two or three years of age under the care of Dr. de Schweinitz. The child could be placed in any position and would stay there almost indefinitely. He could see very little relation between this and true catalepsy. This is a psychical condition, while catalepsy is probably a disease involving lower nerve centres than are affected in this man.

Dr. Hobart A. Hare said, with reference to Dr. de Schweinitz's case, that it exhibited more of the lead-pipe character than does this one. When the attempt was made to move a limb, it moved in a stiff way. One of the peculiar positions in which the child was placed was to seat it on the floor with the head and feet pointing toward the ceiling. It would remain balanced on the coccyx for some time until it fell over exhausted.

The President preferred to accept the German definition of catalepsy as given by Dr. Mills. In his lifetime he had seen two cases. One for but a few moments before the condition passed off. The other was most extraordinary. Many years ago he saw a young lady from the West, and was told not to mention a particular subject in her presence, or very serious results would ensue. He did mention this subject rather with the desire to see what the result would be. She at once said, "You will see that I am about to die." The breath began to fail, and grew less and less. The heart beat less rapidly, and finally, he could not distinguish the radial pulse, but he could at all times detect the cardiac pulsation with the ear. There was, at last, no visible breathing, although a little was shown by the mirror. She passed into a condition of true catalepsy, and to his great alarm remained in this state a number of days, something short of a week. Throughout the whole of this time she could not take food by the mouth. Things put in the mouth remained there until she suddenly choked and threw them out. She apparently swallowed

very little. She had to be nourished by rectal alimentation. She was so remarkably cataleptic that if the pelvis were raised, so that the head and heels remained in contact with the bed, she would retain this position of opisthotonos for some time. He saw her remain supported on the hands and toes, with feet separated some distance, with the face downward for upward of half an hour. She remained as rigid as though made of metal. On one occasion, while she was lying on her back, he raised the arm and disposed of the fingers in various ways. As long as he watched the fingers, they remained in the position in which they had been placed. At the close of half an hour, the hand began to descend by an excessively slow movement, and finally it suddenly gave way and fell. Not long after this she began to come out of the condition and quite rapidly passed into hysterical convulsions, out of which she came apparently well. He was not inclined to repeat the experiment.

Dr. James Hendrie Lloyd related the following case: A male patient, about twenty-five years of age, presented himself at the Nervous Dispensary, University Hospital, with a history of masturbation, and was then suffering with a consequent sexual hypochondria. His manner and facial expression indicated profound melancholia. He told his story with difficulty, and tended constantly to lapse into silence and brooding introspection. While a relative, who accompanied him, was relating some details of the case, the patient was observed to fasten his eyes steadily on the blank wall and remain in a fixed attitude. On seizing his arms and elevating them above his head, they were found in a condition of true "lead-pipe" flexibility, with prolonged persistence in the positions in which they were passively fixed. At the same time the patient was apparently unconscious, or unmindful, of the experiment; and even required a loud call, accompanied with a decided nudge, to bring him to himself. The case throws some light, possibly, upon the psychology of these interesting conditions. This patient was, no doubt, in an exaggerated state of what is usually called "abstraction of mind," which all persons experience in minor degrees. He was absorbed in his melancholy reflections, and oblivious to peripheral impressions. Subsequent observations failed to discover him in this condition.

Dr. Henry said that the idea of simulation in this case, as has been stated, can unquestionably be dismissed. Before any conceivable motive could be ascribed, the actions were more marked than to-night. Since his admission, five or six days ago, he has quite spontaneously assumed various attitudes—dramatic attitudes, attitudes of prayer, etc. In moving the man's limbs there is considerable of the "lead-pipe" element brought out.

Another feature of the case is that the man has had peculiar convulsions resembling epilepsy. He, however, has not lost consciousness. By vigorous shaking and calling, he could be recalled to himself, but his face is absolutely apathetic, and to all appearances he is unconscious; he also refuses to eat, which agrees with the classical descriptions of katatonia; he has to be fed either artificially, or through the fear of artificial feeding, after the nasal tube has been resorted to once or twice, he will take food without it.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, February 23, 1886.

The President, Charles McBurney, M.D., in the Chair.

EXCISION OF THE ELBOW-JOINT.

The President presented a patient upon whom he had performed the operation of excision of the elbow-joint. Miss F., aged twenty-nine years, had a severe attack of articular rheumatism twenty years ago, which left both elbow-joints ankylosed at an angle of about 95 degrees. The ankylosis was bony between the ulna and humerus, but some power of pronation and supination remained, the head of the radius being free.

The right elbow was operated upon February 3, 1885. The straight posterior incision (von Langenbeck) was made through the soft parts. The humerus was sawn through on the level of the upper third of the epicondyle. The whole of the olecranon, coronoid process, and the head of the radius were removed by a transverse saw cut. The incision through the triceps and its aponeurotic extension to the forearm was carefully stitched with catgut. Bone drainage tubes were used, an antiseptic dressing, and a plaster-of-Paris bandage over all, the forearm being placed at a right angle with the upper arm, and midway between pronation and supination. On the 15th day the first dressing was removed, the wound found healed throughout excepting two points of granulation where the tubes were inserted. Passive motion was begun at once, and thereafter practised every day, the arm for some time being always replaced in a plaster supporting case. Electricity was frequently applied to stimulate the long disused muscles. The patient can now completely flex and extend the forearm, and has excellent power of pronation and supination. When the elbow is raised to a point higher than the shoulder, the forearm being completely flexed, the patient can extend the forearm, holding a three pound dumb-bell in the hand, thus showing the actual power of the triceps.

Dr. William T. Bull read a paper on

THE RADICAL CURE OF HYDROCELE BY ANTISEPTIC INCISION.

At the present moment there may be said to be three methods prominently before the profession for the radical cure of hydrocele: the time-honored injection of iodine, the antiseptic incision and suture of the tunica vaginalis to the scrotal skin, with drainage, proposed by Volkmann, and the more recent method of the injection of carbolic acid, suggested by Levis, of Philadelphia. An important modification of Volkmann's method has been adopted by Bergmann, of Berlin. It consists in the extirpation of all the tunica vaginalis save that covering the testicle. I have had some experience with the antiseptic incision, which I wish to present to the Society, though the general results of that method be familiar to all. But I wish to mention these results because but one or two American surgeons have reported their experience in detail, and because I know that members of the Society have had a large experience with other methods. It is, hence, rather as a suggestion for discussion that I offer these few remarks.

I have operated on fourteen patients in all. One

case may be left out of consideration, since the cure of a large reducible hernia was attempted at the same time and the patient died from peritonitis. Of the thirteen cases, all made satisfactory recoveries but one. This was a laboring man, forty-two years of age, somewhat debilitated from exposure, and lack of food, but presenting no signs of organic disease of internal organs, who had had double hydrocele for six months. Both sides were operated on at once. The wound was irrigated moderately with a 1 : 5000 solution of bichloride of mercury, and a dressing of bichloride gauze applied. In forty-eight hours diarrhœa occurred, this was followed by vomiting, abdominal pain, and tympanites, and on the fourth day he died. At the autopsy there were found only the evidences of violent gastro-enteritis, the rectum containing several patches of gangrenous mucous membrane.

Of the twelve successful cases ten were hydroceles of the tunica vaginalis, and two were hydroceles of the cord. The two latter had existed each for three or four years. The duration of the hydrocele was in six cases about one year; in two cases between one and two years; in two others, three years and over. As regards previous treatment, two had been injected with carbolic acid (one of them on two occasions), one with tincture of iodine, and the rest of them had been tapped or received no treatment. At the time of operation but one sac was observed to be decidedly thickened. This contained one or two calcareous patches, which were cut out. One hydrocele of the cord was as large as a horse-chestnut, found to be made up of five or six cysts. This case carbolic acid had failed thrice to cure; the other hydrocele of the cord was in reality a compound cyst of the head of the epididymis. A number of cysts of the size of a split pea were clustered about the epididymis and contained within a larger cyst, which reached upon the cord for an inch and a half.

In ten patients Volkmann's operation was done; in two (cyst of the cord and epididymis) the entire parietal layer of the tunica vaginalis was excised. Bichloride of mercury, in the strength of 1 : 5000, was used in moderation to irrigate the wounds, and extreme care taken to tie all bleeding points. The incisions were long enough to reach from the top of the sac to the bottom of the scrotum. The tunica vaginalis was united by a continuous catgut suture to the skin, and two or three deeper sutures applied to hold the two halves of the sac in contact. A further effort was made in this direction by the application of the dressing in such a way as to *hold* the serous surfaces together. Bone tubes were used in three cases, rubber drains in nine, and here I may say that the latter were shown to be preferable. The bone tubes softened rapidly, but were not absorbed at all, and did not adapt themselves to the sinuosities of the wound. The dressing was uniformly of peat bags (with bichloride) and bichloride gauze, with occasionally a strip of iodoform gauze over the line of suture, and an outer layer of absorbent cotton. There was no instance of excoriation or marked erythema of the skin. The penis protruded through the middle of the dressing, which was applied snugly with crinoline bandages. One or two patients had to be catheterized for twenty-four or forty-eight hours, but this was the only discomfort experienced. The career of the wounds was in all cases aseptic and without fever. A temperature of 100.6° on the evening of the second or third day, without any acceleration of the pulse, was the greatest constitutional disturbance. With little variation the first dressing remained in place until the seventh day. On its removal the tubes were withdrawn, and a lighter dressing of iodoform or boracic ointment and plain absorbent cotton, supported by a suspensory bandage, substituted. This was changed as often as it became soiled. The patients were allowed to move about a day or two later, but were not, with one or two exceptions, discharged from the hospital till the sinuses were healed. As a rule, primary union was found on removing the first dressing. In six cases this was complete except where the drainage tube emerged. In five, besides the "drain sinuses," there was a strip of granulations along a portion of the line of suture, forming a quite superficial ulcer which scabbed over rapidly. In one case primary union was secured, but an accumulation of pus (without fever) made it necessary to break down the adhesion, and the abscess required two months to heal. The sinuses left after removal of the drain healed without special attention. There was no instance of orchitis or epididymitis or inguinal adenitis. Induration and thickening along the cord which had been noted by others, disappeared by the time the sinus closed, or soon after.

As regards the time occupied by the treatment, I find that the shortest period of confinement to bed was seven days, the longest three weeks; the average stay in bed of all twelve cases was ten days. The shortest stay in the hospital was ten days, the longest sixty days; the average twenty-seven days. Two cases were much slower in healing than the rest—one from the occurrence of the abscess just referred to, the other from unexplained causes. I think with proper care the case could be expected to get through in three weeks. I have had the opportunity of examining five of these patients one year after the operation, and they remain cured. Two have been seen six months, two others four months after operation, and are free from recurrence. Of the remaining three I have no information. I may state further that all were operated upon under ether except one. In this cocaine was used, with the effect of rendering the operation absolutely painless.

The result of the treatment of these thirteen cases may be briefly stated as follows: One has died from mercurial poisoning; twelve have recovered, ten after incision with suture, two after excision of the sac. The wounds, except in one case, have healed without pain or constitutional disturbance, and on an average in twenty-seven days, ten of which were spent in bed. Nine out of twelve cases are known to have had no recurrence at a period of from four to twelve months after the operation.

This list of cases adds one to the two deaths previously reported from this operation. A writer in The Medical News, of May 3, 1884, collected from various sources 330 cases, of which two died from septicæmia or pyæmia. Bramann [1] from v. Bergmann's clinic, has reported 20 cases without any deaths. This would make 363 cases, with 3 deaths, a mortality percentage of 0.82. As to recurrence, I have no further information than that

[1] Berl. klin. Wochen., April 6, 1885.

given of the 330 cases above referred to, where in 5, or 1.5 per cent., it was noted.

The duration of treatment is variously given, and I do not think much stress can be laid on it, since no two surgeons estimate it in the same way. But it is stated by Volkmann to be on the average 12 days, by Juillard 10 days, by Kuester and Rochelt 14 days, by Lister 17 days, Albert 21 days, Albers 5 to 6 weeks, Englisch 15 to 45 days. These figures are from Bramann's article.

The possibility of recurrence is generally admitted, though claimed to be rare, and the cause is found in the failure of the two serous surfaces, after suture, to unite fully. Small cavities are left which are the starting-points of reaccumulation.

In order to decrease the probability of recurrence, v. Bergmann has proposed the extirpation of the parietal layer, and carried it out in twenty cases, as mentioned above. The wounds healed without febrile movement on an average in ten to twelve days, and no recurrence has yet been seen.

From the experience of the two cases of hydrocele of the cord, and one hydrocele of the tunica vaginalis in which the parietal layer was cut away, and another case in which I have lately sacrificed this membrane in a cyst which complicated a varicocele, I can confirm the statement of Bramann, that the method is exceedingly easy, is even more rapid than Volkmann's, since all the time spent in suturing the tunica to the skin is saved, and the conditions for uncomplicated wound healing are more favorable, and the extirpation of all the tunic which gives origin to the cysts seems to leave no chance for recurrence; the functions of the testicle and the cremaster muscle are in no way disturbed, and the cicatrix left is barely perceptible.

The technique of the operation needs but slight mention. The incision should reach from the top of the sac to the bottom of the scrotum, and I prefer to place its lower end behind the testicle, in order that the drainage tube may be out of the way. The tunica is best removed by stretching it on the fingers and cutting through and pushing back the loose connective tissue with blunt scissors. It is much easier than the extirpation of a hernial sac, where the pressure of a truss has made the layers adherent. The membrane is removed clear up to the epididymis and testicle. It is important to be very painstaking with the ligatures, and to have the drain long enough to pass beyond the testicle. In other respects one proceeds as in Volkmann's operation, but the suturing of the wound is simpler as the tension is absent.

The iodine injection has no deaths at its door, but a very considerable number of recurrences have been noted. In 523 cases there have been 44 recurrences, a percentage of 8.4, and acute suppuration has supervened in 5 instances, or 0.95 per cent. (MEDICAL NEWS, as above). The time of treatment at the clinic at Kiel is estimated at eight to nine days; in Billroth's clinic about nine days; in the Charité Hospital at Berlin two to seven weeks. I should think ten days an outside estimate for the cases I have treated in this way, most of which have been in private practice; but I agree with Bramann in assuming that this class of patients, as they have had no wounds, are apt to be dismissed from treatment many days before they are really able to resume their occupations, when there is still much swelling and tenderness present, and that, if we should not call them cured till the parts had been restored to normal appearance, the duration of treatment with iodine injection would cover quite as long a period as that by antiseptic incision.

The carbolic acid injection has as yet caused no fatal results. In eighty-two cases reported by Weir and Abbe, there was suppuration in three cases, in one of which the sac sloughed. One recurrence is noted. The recent statement of Dr. Keyes (*Med. Record*, Feb. 20, 1886), that he has employed it in all classes of cases to the number of fifty, without any accidents, and with perfectly satisfactory results, is enough to warrant its general adoption. But I cannot help thinking that the method is too recent yet for us to get full information as to the percentage of relapses. It is a striking fact that of the thirteen cases I have met with, two had been treated unsuccessfully in this way. As it attempts a cure by the same process as that incited by iodine—an adhesive inflammation, I see no reason to believe that it will ever yield much better results. Fifty years ago the iodine method was reported from the native hospital of Calcutta (quoted by Curling) to have been employed in 2393 cases, with less than one per cent. of failures. But one German clinic has reported recurrence in 15.5 per cent. of the cases. The general impression is that carbolic acid is less painful than iodine, and that it is less irritating.

One fact bearing on the ability of any injection treatment has been demonstrated by the practice of antiseptic incision—that is, the presence of pathological conditions with which the injections could not reasonably be expected to cope successfully. In a total of 123 cases collected by the writer in THE MEDICAL NEWS, "cysts were found on the vaginal tunic, the testicles, or the epididymis in 43; the testicle and epididymis were enlarged in 23; the vaginal tunic was thickened in 54; false membranes were present in 26; and free or attached foreign bodies were met with in 3." The two multiple cysts of the cord to which I have referred, one of which had twice resisted the injection of carbolic acid, go with these other figures to demonstrate to my mind that we must expect a certain percentage of failures.

The small percentage of failures after the antiseptic incision shows it to be, in my opinion, incontestably the surest way of curing any form of hydrocele. And if we add to the operation the extirpation of the tunica vaginalis, the method would be absolutely free from any recurrence. But it is certainly not without risk, even with its small percentage of deaths, 0.82 per cent.; it makes a wound of considerable extent, which exposes the patient to all the accidents of wound healing; it necessitates, if one acts with due caution, longer confinement to bed, and demands rigorous attention to, and every facility for, antiseptic treatment. In view of these considerations I shall be disposed in the future to reserve the operation for cases in which the injection method has failed, or to perform it only upon patients who, with knowledge of its chances, prefer to take them. As to the relative merits of the carbolic acid and iodine injections, I have no opinion to express, based on personal experience; but, from the experience of Weir, Keyes, and others, I should feel warranted in adopting the carbolic acid, and of sticking to it until it is proved less satisfactory than it seems to be at present.

But I believe that the possibility of failure or of an early recurrence should never be left out of consideration in recommending the injection of either agent, and that we should be prepared with every antiseptic precaution to perform successfully the only truly radical operation, that of extirpation of the tunica vaginalis.

Dr. H. B. Sands said that he had listened with much pleasure to the paper read by Dr. Bull, because the operation to which particular reference had been made was one which he had rarely found occasion to perform. He had done it in three instances, all of which had a satisfactory termination. But he thought the paper showed that a major operation should never be done when a minor operation would suffice. His own experience went to show that treatment of hydrocele by iodine injection is not only safer than any other operation, but far more successful than would be inferred from reading Dr. Bull's paper. His own experience may have been exceptional in this regard, but he could recall very few failures in a large number of cases treated. He had supposed that failure after using iodine injection was not infrequently due to its faulty employment, using either too weak a fluid or too small a quantity. He had usually employed the ordinary tincture of iodine, injecting from two to four drachms of it, and leaving it in the sac. He had never known symptoms of iodism to follow, and had almost invariably found the practice to be followed by a cure. His own experience has been that the patient recovers within a week or ten days. He could recall six cases in private practice, in which he had operated within the last eight or nine months, and all these patients had gone out of the house in the course of a week, except one who remained indoors much longer than was necessary for his health. He does not think iodine injections are attended with any risk to life, or with much danger of recurrence of the hydrocele. Of course, as Dr. Bull had said, the incision sometimes reveals pathological conditions with which injections could not be expected to cope. But the best answer to the question will be found in the result of a large experience, and his own experience is very strongly in favor of iodine injections. He could see no excuse for subjecting any patient, suffering with ordinary hydrocele, to the antiseptic operation. As the writer had said, it is necessary to observe strict antiseptic precautions, which might be carried out in large cities and in hospital practice, but to recommend such a method for general use would be very dangerous, and he was very strongly opposed to it because it is only when the iodine treatment has failed, and the pathological condition is such as cannot be removed by the iodine treatment, that it is justifiable.

He had had only a limited experience in the use of carbolic acid, but he had twice seen suppuration follow its use, which he had not seen after the use of iodine; and he doubted whether injection of the sac with iodine is attended with the least possible risk. He had never seen constitutional disturbance which had given him any alarm. He believed that iodine, or perhaps carbolic acid, which might be less painful, is better than incision, which should be reserved for cases in which the ordinary treatment has failed.

Dr. C. K. Briddon had performed Volkmann's operation a number of times, and his experience with reference to cure does not coincide with that of the author of the paper; certainly the period required to effect a cure was much longer. He thought one difficulty is in applying an antiseptic dressing to the scrotum, which is so movable.

He has had quite a large experience with the use of iodine injection, and the results coincided with Dr. Sands's, and he added that he had treated a large number of cases where the patients had not been confined to bed at all. The latter cases were in dispensary practice a good many years ago, and he remembered only one patient whom he visited after his hydrocele had been injected at the dispensary, and that was an old man in whom there was a double hydrocele, and he made the injection on both sides at one sitting. There was quite sharp reaction, but no suppuration occurred. In all the other cases the patients visited the dispensary within four or five days, which, he recollected, was the average period of time they were kept from their work. His method was first to empty the sac, and then inject Lugol's solution, two or three drachms, to which was added a piece of iodide of potassium as large as a pea, to prevent the precipitation of the iodine in the scrotum. He did not remember a single recurrence; if recurrence took place, the patients did not return to him.

He had not used carbolic acid because he had been so well satisfied with iodine. The only disaster which he had had was in one case which he had tapped without injecting iodine, and in which sloughing of the scrotum took place.

Dr. Weir said that in 1882 he had the honor to present to this Society a paper on the subject of carbolic acid injections for hydrocele, as suggested by Levis, of Philadelphia, and he then reported that he had performed Volkmann's operation twenty-seven times, and had gladly abandoned it in favor of the newer method of treatment, which has not only superiority over Volkmann's operation, but also over the iodine treatment, in which he had seen occasional relapses and great pain following immediately after the use of iodine, and also sufficient inflammatory action to keep the patient in bed several days and to give rise to a great deal of suffering. Besides, in his army experience he saw one case of death follow injection of a hydrocele with iodine; but this occurred in a patient who was enfeebled by a recent fever and in whom the inflammation involved the cord and subperitoneal tissues.

He had used now carbolic acid injections over sixty times, and with only two cases in which he regretted its use. Occasionally relapses had occurred; not a large proportion, however, as he could recall only four or five instances where it took place, and in which the patients were cured by a repetition of the same treatment. In three of these the injection was repeated too soon, as subsequent experience showed that a longer delay would have probably resulted in a cure. In one instance, of the two just alluded to, there was quite extensive suppuration following the use of carbolic acid, and in another suppuration was threatened. In the one in which suppuration occurred, a lesson was derived which was of importance to place before the Society and ask attention to it. He had been, up to this time, in the habit of injecting various quantities, from half a drachm to a drachm and a half of carbolic acid after emptying the sac. In this case, quite a large hydrocele, the iodine treatment had been unsuccessful, and the other side of

the scrotum had been treated successfully by incision after the old method. He injected a drachm and a half of carbolic acid, which was followed by the usual absence of pain, but with recurrence of swelling after a few days, which did not subside, but went on to suppuration, and on opening the abscess shreds of membrane were discharged, and finally large masses; in other words, gangrene of nearly the entire tunica vaginalis was produced. Since then he has rarely injected more than half a drachm at a time.

Not that he was dissatisfied with the carbolic acid treatment, but led by a desire to test the operation under cocaine, he had lately performed Volkmann's operation five times with the new anæsthetic, with satisfactory results, one of which was done on a man at the college clinic. The operation was painless. An antiseptic dressing was applied secured by a well-padded compress and a double figure-of-eight bandage, and the man was allowed to go home. Two days afterward he appeared at the hospital for inspection of the dressing, which was still complete. It was an ambulant case throughout, and progressed favorably from the outset, which illustrated that it is possible to keep an antiseptic dressing upon the scrotum when thoroughly applied.

The objection to Volkmann's operation, and to the still more thorough one of Bergmann, is a just one, and its severity was fully appreciated by Koenig, who had stated that if he had a hydrocele he should prefer the injection process rather than undergo such a severe operation for a slight ailment.

He still felt that the painlessness of the carbolic injections and the comparatively slight reaction, as well as the fair amount of certainty of cure, entitle it to the first place in the treatment of these affections of the scrotum.

DR. SANDS said that Dr. Weir confessed, in his cases, to eight or ten per cent. of failures or recurrences. He had not seen any such percentage of failures or recurrences after the iodine treatment.

DR. WEIR referred to Osborn's recent monograph in which he gives fifty-four cases with eighteen failures with the iodine treatment, which is a very large percentage.

DR. GEORGE A. PETERS said that his experience had been chiefly in the use of injections of iodine, and he had been very well satisfied with it; so well satisfied that he had not been tempted to perform Volkmann's operation. As to the method of using it, he injected the pure tincture, and the quantity was two drachms. He thought one reason why occasional suppuration occurs is because there is carelessness in its use, and some of the tincture is allowed to get into the cellular tissue. Observing this precaution, he thought suppuration would seldom take place.

As to duration, he thought that a week or ten days would cover the treatment. As to the number of recurrences, certainly in his experience they had been very small. He had not had any experience in the use of carbolic acid, as the iodine treatment had satisfied him very well.

DR. L. A. STIMSON said that his personal experience in Volkmann's operation had been limited to three cases. The last one came to him shortly after he had seen the same operation performed by a colleague, followed by a recurrence before the patient left the hospital. In this case, that of a young man, he operated about Christmas, making an incision not more than one and a half inches in length, and stitched the edges of the parietal tunica to the skin, and then washed out the cavity of the sac with pure carbolic acid. He did this with the expectation of so modifying the apposed surfaces that union would take place promptly and completely, and in this instance the result justified the hope, as the patient got well without discharge from the wound after the first twenty-four hours. The cure was complete. This was the only case in which he had applied carbolic acid in this manner.

As to the carbolic acid treatment, he had seen one case of suppuration after injection of a solution of carbolic acid in glycerine; he had seen some cases of recurrence after the use of the method; in one of them spontaneous cure took place afterward.

In two cases he had tried another method, namely, injections of chloride of zinc. One was in a lad eighteen years of age, in whom, without drawing off the liquid, he injected half a drachm of a five per cent. solution of chloride of zinc, which caused no pain at the time, but during the afternoon and evening and the following day, the pain was considerable; on the fourth day he drew off four ounces of liquid which was turbid and contained many leucocytes, and the case then went on to recovery without further incident. In another case a weaker solution of the fluid failed, but he thought the method worthy of further trial.

DR. LANGE mentioned one rare occurrence which he had met with in operating according to Volkmann's method; that is, the presence of two or three long hairs taking their origin from tunica vaginalis of the testicle. He excised the hairs, but had not made a microscopic examination of the tissue from which they took their origin. Recovery took place without disturbance. He had not had disagreeable symptoms after Volkmann's operation, which he had performed in a number of cases, but he must say that, as a rule, in cases where the tunica vaginalis is thin and the hydrocele not of long standing, he treated them by the injection of iodine. He had seen recurrence exceptionally even after repeated injections.

He thought that probably for a small percentage of cases the radical operation would always remain necessary; for instance, for those where the tunica vaginalis is very much thickened, or for cases of hematocele where thick fibrinous pseudo-membranes exist. He did not regard the operation as dangerous, if the necessary precautions were taken.

DR. T. M. MARKOE said that the expression of opinion had been so nearly unanimous, and accorded so nearly with his own, that he had but little to add to what had already been said. He was convinced that the success of the iodine treatment depends very much upon the manner in which it is carried out. He had not used the simple tincture, for the reason that the iodine is precipitated by the serous fluid, and is liable to be deposited in a single spot, where it is more likely to produce irritation if irritation is produced at all. He had, therefore, for many years used the strong Lugol solution, in which the iodine is rendered more soluble by the addition of double the quantity of iodide of potassium and in which the iodine is not precipitated by the fluid in the tunica vaginalis; this, in his hands

had been very efficacious. Although he had performed Volkmann's operation a certain number of times in hospital practice, he had in private practice still adhered to the iodine treatment. So far as recurrence is concerned, he could not say which method makes the most certain cure, but the iodine injection is so simple that it can be repeated without difficulty or danger.

The President said that he had met with quite a number of cases of hydrocele in which the patients had reported that they had received injections of iodine, and in some instances two or three times. He had, however, been struck with the ease with which cure is effected in even these cases by repeating the process. He had thought that the recurrence was due to one of two errors —either in not emptying the sac completely, or in using too small quantity of iodine. The operation is so simple, and has been so long employed, that he thought one or both of these errors are very frequently made. His own experience led him to believe that if the fluid is evacuated entirely, and the injection made very fully, using half an ounce instead of a drachm—as was frequently used—of iodine, the success is very great.

Dr. Lange asked what the condition of the tunica vaginalis was after the injections of pure iodine in which cure followed; in other words, does adhesion take place?

Dr. Weir said that in his fatal case adhesion had taken place on the tenth day. In large patches of the serous membranes, and where the two surfaces were yet apart, flocculent lymph in small amounts could be seen.

Dr. Briddon thought that cure occurred in both ways. He had noticed in a number of cases where the pain was severe, we were apt to get consolidation of the tunica vaginalis, while in other cases this did not occur, and the contents of the tunica vaginalis remained fluid. But in either instance cure was produced: in the one by adhesion, in the other by some alteration of the scrotal structure which prevented relapse.

Dr. Lange remarked that the process of adhesion after the inflammatory stage is usually pretty slow, and may extend over a number of weeks. He thought it rather probable that no adhesions take place, but that the tunica vaginalis is restored to its normal absorbing condition.

Dr. Weir said that when he was using the carbolic acid injections, he noticed in some of the earlier cases that there was considerable accumulation of fluid which was absorbed slowly, and he thought he would hasten it by aspiration, but on the introduction of the needle he was able to withdraw only about a drachm of rather gelatinous material, which probably would have gone on to adhesions under such circumstances.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, March 4, 1886.

The President, A. Jacobi, M.D., in the Chair.

Dr. D. B. St. John Roosa read a paper on.

Limitations in the value of glasses for the improvement of vision and the relief of disease.

He first gave a brief sketch of the progress of ophthalmological science, the invention of the ophthalmoscope by Helmholtz in 1851, and of the English and German system of test-letters in 1854, and went on to say that the vast proportion of eye troubles met with to-day are errors of refraction and accommodation. Defects of sight are only one, and sometimes only a temporarily acting factor of the causes of neuroses.

Having remarked that he was not sure that Donders, in giving us convex and cylindrical glasses, had not rendered as good a service to the human race as any one man; he said that he could perhaps make his subject as clear by a recital of practical cases in his experience as in any other way. Among the cases which he described were the following:

Pain in the back part of the eyes in using them for near objects. In this case the use of glasses alone was insufficient, although hypermetropia was present. By glasses, combined with the use of electricity and moral suasion, the patient was cured.

Frequent winking. In this case all glasses caused a blur; but relief was eventually secured by the use of convex glasses and exercise in the open air. The patient was a clerk in a country store, and in consequence of the long hours demanded of him, was confined within doors most of the time.

Severe neuralgic headache. In this case the patient was a young seamstress, and complete relief was obtained by the use of cylindrical glasses.

Severe headache and distorted vision for close work. The patient was a young woman who had become reduced in circumstances and was obliged to work hard for a living by coloring photographs; but there was little chance of successfully treating her case by attending to the eyes alone. She had myotic astigmatism, and suffered also from uterine disease, as well as overwork and worry.

Sick headaches; hypermetropia. The patient was a woman of forty-three years of age. No relief whatever was given by the wearing of glasses, and it was plain that something else besides hypermetropia was the cause of her trouble.

Nausea and headache. In this case the patient, whose trouble was caused by a serious blow upon the head, suffered from asthenopia, and was unable to use the eyes for close work.

Asthenopia. In this case there was insufficiency of the internal recti, and relief was afforded by the use of electricity and appropriate glasses.

Frequent headaches; myotic astigmatism. Relief from glasses.

Dizziness and double vision. The patient was a young boy who had insufficiency of the internal recti, and nearly complete recovery resulted from the use of glasses.

The last two cases to which Dr. Roosa referred were typical instances of neuroses in which it is impossible to expect complete relief from the wearing of glasses alone. They were two brothers, of neurotic diathesis. He remarked, in closing, that not much could be done for the relief of uterine asthenopia.

Dr. David Webster thought that Dr. Roosa, in his paper, had given an excellent picture of everyday work in hospital and private practice among ophthalmologists, and said that he agreed with him entirely in his opinions. The fact is, that nearly everyone has more or less error of refraction, and out of every hundred persons, not more than five or six would be found entirely free from this. The number of individuals who need the aid of

the ophthalmologist on this account, however, is comparatively small. He agreed with the author of the paper that the condition of the general health is a very important factor. In numerous instances, where this is good, there is no appreciable trouble with the sight; but if, for any reason, it becomes impaired, the eyes at once require attention. He believed, also, with Dr. Roosa, that there is a limitation to the value of glasses in these cases.

As to reflex neuroses caused by eye-strain, he had seen many cases of headache, nausea, etc., cured by glasses or the division of a muscle when it was too strong for its fellow. He had also seen many cases in which marked relief, by means of prisms. was obtained, and in some instances by prisms of very low power. He concluded by relating two cases, in one of which the treatment by prisms of very low power, and in the other by prisms of very high power, was successful.

Dr. Charles Stedman Bull said that he quite agreed with Dr. Roosa that of late, in this city and elsewhere, altogether too many diseases, both reflex and organic, had been considered as attributable mainly to eye trouble; and he believed that the paper would have an excellent effect in disabusing the minds of many of this erroneous impression.

Dr. E. Gruening said that in certain cases of dizziness and diplopia he had been able to relieve the difficulty by simply prescribing window-glass. The glass over one eye is ground, and over the other left plain, so that the patient can see with but one eye; and as long as such glasses are worn, there is no return of the trouble. It is a fact that is apt to be overlooked, however, that often a slight paralysis of the muscles of the eye is only a symptom of some grave systemic disease, such as tabes.

Dr. William Oliver Moore related a case, showing the limitation of the use of glasses in epilepsy.

Dr. R. W. Amidon said that neurologists are convinced of the utility of glasses in only a very limited number of reflex neuroses, and that he was glad to hear Dr. Roosa also express the opinion that the field is quite a limited one. He regretted that he had not spoken in regard to the special location of headaches associated with different forms of eye trouble. In his own experience he had found that the pain is usually frontal when depending on errors of refraction, and posterior when resulting from insufficiency of the interni muscles. Another important point, in regard to which patients often make inquiry, is, as to how long it is necessary to wear glasses in such cases. In many instances the improvement in the general health is such as to enable the patient, on account of the improved condition of the eyes consequent upon this, to dispense with glasses a considerable time before it is necessary to wear them for presbyopia. When, therefore, he is asked by those suffering from asthenopia if they would have to wear glasses constantly, he often tells them that if their general health improves, they will be able to leave them off.

The author of the paper, he said, in conclusion, had hardly laid as much stress on deficiency of the muscles, particularly the interni, as seemed to him advisable. In his own practice, he had seen excellent results in this condition from the use of prisms; but such cases are often difficult to treat, as the insufficiency varies from day to day, improving with the general health, and *vice versâ*.

Dr. Henry G. Piffard exhibited

A NEW ELECTRIC LIGHT.

The apparatus, he said, was made by the Galvano-Faradic Company, of Fourth Avenue, New York, and it had been perfected by two or three suggestions of his own. Its advantages are a portable battery at moderate expense, and a light of fair constancy. The battery consists of six cells, and the light can be maintained without any perceptible diminution for an hour. Such an electric lamp, he said, he had long needed in his own work, for making examinations of cutaneous disease at night and on dark days, and he thought it would be extremely useful to surgeons for night-work.

CORRESPONDENCE.

MEDICINE IN PARIS.

Trouvé's electrical explorer—Chloropeptonate of iron—Constipation cured by hypnotism—Albuminuria in growing children—Grave pulmonary diseases cured by terpine—Double pneumonia treated by pilocarpine.

Paris, February 19, 1886.

M. N., a young man, was recently admitted into M. Richet's wards of l'Hôtel Dieu, accidentally wounded in the knee by a revolver, which he had withdrawn from his belt. The house surgeon made an occlusive dressing. The next morning, when the chief went his rounds, he examined the patient and ascertained the presence of a hard, round ball, which could be moved by the finger. The tract limited by the spot where the ball entered and the one it occupied was inflamed; pressure on the projectile caused violent pain. M. Richet considered it best to extract the ball for the reason that it might be necessary to open the articulation, and the track followed by the ball was too much inflamed to be exposed to the air; the subsequent condition of the patient proved the wisdom of M. Richet's decision; fifteen days later a phlegmonous swelling appeared on the outer surface of the knee, the ball was lodged on the inner side. The patient was very feverish. The abscess was incised and a quantity of pus escaped; fever was intense, but local inflammation gradually subsided. The ball was encysted, M. Richet decided on extracting it, but before operating he ascertained its exact position by using Trouvé's electrical explorer (Trouvé's explorateur electrique).

M. Richet frequently used this apparatus in 1870 and 1871, during the war, also quite recently to explain violent pains in the bladder of a patient who entered the wards with a foreign body in the bladder. Passing a bougie failed to reveal any symptoms suggesting the presence of a calculus. The patient was stubbornly silent, and M. Richet believed that he had introduced a foreign body into the urethral canal. A stone-crusher was introduced into the bladder, and was opened by using Trouvé's apparatus; the foreign body was seized by the instrument, which, being in contact with the electrical explorer, vibration was produced, and revealed the presence of a metallic object.

A few days ago, M. Verneuil, of the Pitié Hospital, also used Trouvé's apparatus. This operation was

more complicated. The patient was formerly a soldier; in 1870 he was shot in the thigh; the ball was lodged deep in the tissues. Some time later on, an abscess formed in the interior of the pelvis, and opened exteriorly. When the patient entered the hospital, there was a fistula damaging the adductor longus femoris muscles; fever and pain were both absent, also chronic septicæmia. M. Verneuil explored with a sound, and ascertained the presence of a bullet. He was proceeding to operate, when a quantity of pus escaped from the inferior portion of the fistula, and the ball, which was encysted and immovable, fell into the wound. All operation was suspended for a time. Later on, the ball was sought for by means of the electrical explorer, which, by its bell, revealed the presence of the ball resting on the sacrum.

Dr. Jules Jaillet has made a series of experiments to determine the action of iron on the organism. The chloropeptonate of iron he considers the best form. He has demonstrated by different experimental means of absorption (hypodermatic, rectal, and venous injections, and ingestion), that this salt of iron is assimilated by the red corpuscles. Chloropeptonate of iron is a veritable chemical combination, which is not affected by the gastric juice, nor the alkalies of the blood; it increases combustion, encourages nutrition, and produces consequently a higher temperature, the process of disassimilation is more active, and the excretions are more plentiful. The appetite increases, but the patient grows thinner; nevertheless, the physiological properties of the blood are improved. Clinical experience has endorsed the truth of M. Jaillet's experimental therapeutics.

Dr. Beuvit du Martouret cures constipation in nervous women by hypnotic suggestion. The patient is sent to sleep, and then it is suggested to her that she is not constipated, but will have a motion on awakening.

M. Eichhorst has observed several instances of albuminuria at the onset of puberty, and quite unexplained by any concomitant pathological condition. The urine contained albumen; sometimes its appearance preceded general disturbance, and disappeared with the other symptoms. The urine was always yellow and limpid; only once did M. Eichhorst find hyaline casts and fat-corpuscles. These attacks of albuminuria reappear after an interval of weeks or months. They may last a day or a week. The prognosis is not serious. Country air and tonics are the best remedies. The symptoms are lassitude, fatigue, inaptitude to work, loss of memory, irritability, changeable temper, and excitability; sometimes there are cephalalgia, vomiting, muscular contractions, and epileptiform convulsions; these latter last but a short time.

Dr. Descroizilles, physician at the Children's Hospital, has successfully treated with terpine a case he describes as pulmonary tuberculosis or chronic bronchitis simulating tuberculosis. The patient was a boy, eight years and a half old, small and delicate; he had been previously treated at the hospital for pleurisy on the right side; he coughed, vomited, spat blood, and had night-sweats; had completely lost his appetite, and was too weak to move. Very little could be learned concerning his antecedents. In the right subclavicular region there were dulness on percussion, a cavernous souffle, and subcrepitant râles. The sputa were abundant; were both mucous and purulent, and were mixed with blood. The axillary temperature rose to 38° C. (100.4° F.), the pulse to 120, and the respirations were 40 to the minute. The regions affected were painted with tincture of iodine. A gramme of phosphate of soda was given daily. The child grew worse; hæmoptysis occurred several times; he alternately suffered from diarrhœa and constipation. The dulness on percussion became more and more marked at the apices of both lungs, but especially so on the right side, where moist râles, almost gurgling, were heard, also a cavernous sound; on the left side moist crackling sounds had been replaced by dry, crackling sounds. The symptoms increased; the child grew weaker; he refused food; his cheeks were sunken and flushed; death seemed imminent. Glycerine and creasote were substituted for phosphate of soda, without any good result. Dr. Descroizilles then decided to administer terpine. Two grammes of this substance were dissolved in 40 grammes of alcohol and 20 of distilled water. The child took three or four teaspoonfuls of this mixture daily, which represented 50 or 60 centigrammes of terpine. A marked improvement followed; less sputa were expelled, and they were free from blood; appetite increased, and the general condition improved. He entered the convalescent period. Lime phosphate and gentian wine were given instead of terpine. In the interval between the beginning of September and the middle of November, the pulmonary symptoms disappeared, the auscultation sounds became healthy, and the child was sent into the country apparently reestablished in health.

Dr. Humbert Mollière has successfully treated double pneumonia with pilocarpine. The patient was exhausted by dysentery and albuminuria, when he was attacked with pneumonia of both lungs. The intestinal disturbance was greatly aggravated. A centigramme of pilocarpine was injected, and was followed by most happy results. The respiratory movement fell from 48 to 24 a minute, and dyspnœa was much relieved. Four hours later, another injection was made, and was repeated the next morning. Each injection was followed by profuse sweats and salivation, and dyspnœa was greatly relieved. The patient rapidly recovered. M. Mollière, in administering pilocarpine, was guided by former experience. An elderly man, with uræmia accompanied by dyspnœa and delirium, who seemed dying, was greatly relieved and ultimately cured by a similar treatment. Dr. Mollière describes another case equally remarkable. A young woman, with a comatose form of uræmia and renal lesion consequent on a cardiac affection, was freed from the comatose condition by pilocarpine injections. In consequence of insufficiency of both renal filtration and pulmonary hæmatosis, the blood was not purified. Uræmia was coexistent with asphyxia. The profuse sweats and abundant salivation resulting from the use of pilocarpine, exerted a purifying influence on the blood sufficient to carry on vitality until the lungs regained their normal permeability and hæmatosis was more thoroughly effected.

NEWS ITEMS.

CHICAGO.

(*From our Special Correspondent.*)

The College of Physicians and Surgeons of Chicago.—The annual commencement of the College

of Physicians and Surgeons of Chicago was held February 23d. Diplomas were conferred upon seventy-one out of the eighty-five members of the senior class. One hundred and sixty-five students matriculated during the winter session.

Dr. E. F. Wells, of Minster, Ohio, has been elected Professor of Materia Medica.

The Health of Dr. N. S. Davis.—We are happy to state that Dr. N. S. Davis has recovered, apparently, completely from his recent attack of hemiplegia. He has resumed the editorial management of the *Journal of the American Medical Association*, and will complete his course of didactic and clinical lectures at the Chicago Medical College and Mercy Hospital.

A New Medical School in the Northwest.—On February 3, 1886, the new buildings of the St. Paul Medical School were formally dedicated.

The St. Paul Medical School was organized in 1871 as a preparatory school, and reorganized on the same basis in 1876. It was organized as a regular medical college, with a graded course of four years, in 1878. In 1880, the college was transferred to Minneapolis, but, in 1885, was brought back again to St. Paul.

With a complete faculty of active and energetic medical men, enthusiastic students, well-equipped laboratories, new and commodious buildings—paid for—and a graded course of instruction extending through three years, the St. Paul Medical College will doubtless, as it deserves to, "flourish, bloom, and bear fruit." Minneapolis, with a total population of 128,000, supports two regular medical schools. St. Paul, with a total population of 124,000, has produced up to the present time but one regular school of medicine. A fair proportion of medical students, both in St. Paul and Minneapolis, are derived from the northern provinces, including Manitoba.

Cook County Hospital.—At an adjourned meeting of the County Board, held on Saturday, February 27th, the following medical men were appointed on the medical staff of the County Hospital, to constitute the Medical Board of that institution:

Surgeons.—Christian Fenger, J. B. Murphy, A. J. Baxter, J. M. Hutchinson, W. P. Verity, Leonard St. John, D. A. K. Steele, E. W. Lee, Truman W. Miller.

Physicians.—Norman Bridge, P. J. Rowan, H. C. Kerber, A. C. Cotton, S. A. McWilliams, G. B. Abbott, John A. Robinson, D. W. Nolan, Andrew J. Cory.

Obstetricians and Gynecologists.—John Guerin, Fred. Heurotin, F. C. Schaefer, George H. Randall.

Ophthalmologist and Otologist.—W. F. Smith.

Pathologist.—Elbert Wing.

Queen Victoria, it is stated, will personally officiate at the corner-stone laying of the new building to be erected on the Thames Embankment by the Colleges of Physicians and Surgeons, the appointed date being March 24th.

The British Gynecological Society numbered four hundred before the close of its first year

A Committee has been organized to collect funds for the erection of a monument to the three distinguished French physicians, Bretonneau, Velpeau, and Trousseau.

First Russian Medical Congress was opened in St. Petersburg on January 7, 1886, under the presidency of Prof. Krassowski.

New York State Medical Association.—The third special meeting of the Fifth District Branch of the New York State Medical Association will be held in Yonkers, March 23, 1886.

Ovation to von Langenbeck.—A banquet attended by an enormous concourse of students and professors, was tendered to Professor von Langenbeck, in Bonn, in February.

Recovery of Dr. Rochester.—The complete recovery of Dr. Thomas F. Rochester, of Buffalo, after a prolonged and painful illness, is announced.

Dr. Filehne, teacher of Pharmacology in the University of Erlangen, has accepted an invitation to the professorship of the same subject in the University of Breslau, in the Chair of the late Dr. Haeser.

NOTES AND QUERIES.

DISCOLORATION FOLLOWING THE EXTERNAL USE OF PYROGALLIC ACID.

To the Editor of The Medical News.

Sir: Allow me to call attention to a correction, as to a matter of fact, in the external use of pyrogallic acid in cutaneous affections; in regard to which I stated in an annotation in the American edition of Reynolds's *System*, vol. iii. p. 886, on the authority of Hebra, that it does not, like chrysophanic acid, discolor the skin.

I have received a note from Dr. M. Magelssen, of Red Wing, Minnesota, informing me that a decided discoloration followed a single application to the face, in a case of psoriasis, of a five per cent. ointment of pyrogallic acid.

Very respectfully,
H. Hartshorne.

Germantown, Philadelphia,
March 1, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 2 TO MARCH 8, 1886.

Williams, J. W., *Major and Surgeon.*—Ordered for duty as Post Surgeon, Vancouver Barracks, Washington Territory.—*S. O. 31, Department of Colorado*, February 20, 1886.

Munn, C. E., *Captain and Assistant Surgeon.*—Ordered for duty as Post Surgeon, Fort Cœur d'Aline, Idaho Territory.—*S. O. 31, Department of Colorado*, February 20, 1886.

Wood, M. W., *Captain and Assistant Surgeon.*—Ordered for duty as Post Surgeon, Fort Walla Walla, Washington Territory.—*S. O. 31, Department of Colorado*, February 20, 1886.

Tremaine, Wm. S., *Surgeon and Major.*—Leave of absence extended six months on surgeon's certificate of disability.—*S. O. 50, A. G. O.*, March 2, 1886.

McElderny, Henry, *Major and Surgeon.*—Leave of absence extended one month.—*S. O. 49, A. G. O.*, March 1, 1886.

Arthur, William H., *Assistant Surgeon.*—To be Assistant Surgeon with the rank of Captain, after five years' service, in accordance with the Act of June 23, 1874. February 18, 1886.—*Circular, A. G. O.*, March 1, 1886.

Bushnell, Geo. E., *Assistant Surgeon.*—To be Assistant Surgeon with the rank of Captain, after five years' service, in accordance with the Act of June 23, 1874. February 18, 1886.—*Circular, A. G. O.*, March 1, 1886.

Birmingham, Henry P., *Assistant Surgeon.*—To be Assistant Surgeon with the rank of Captain, after five years' service, in accordance with the Act of June 23, 1874. February 18, 1886.—*Circular, A. G. O.*, March 1, 1886.

Wyeth, Marlborough C., *Assistant Surgeon.*—To be Assistant Surgeon with the rank of Captain, after five years' service, in accordance with the Act of June 23, 1874. February 18, 1886. *Circular, A. G. O.*, March 1, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLVIII. SATURDAY, MARCH 20, 1886. NO. 12.

ORIGINAL LECTURES.

THE ETIOLOGY, MORBID ANATOMY, VARIETIES, AND TREATMENT OF CLUB-FOOT.

Two Clinical Lectures delivered at the Philadelphia Hospital.

BY A. SYDNEY ROBERTS, M.D.,

SURGEON TO THE HOSPITAL, AND ORTHOPÆDIC SURGEON TO THE OUT-PATIENT DEPARTMENT OF THE UNIVERSITY HOSPITAL; INSTRUCTOR IN ORTHOPÆDIC SURGERY IN THE UNIVERSITY OF PENNSYLVANIA, ETC.

LECTURE II.

GENTLEMEN: Our last meeting closed with a brief description of the primitive forms of club-foot. We now pass to the consideration of the treatment of talipes in general, such modifications as may be necessary to correct the deformity in any special case which may come before us being deferred until we discuss the compound forms. Properly to cope with these conditions, it is essential that you should thoroughly comprehend the factors, pathological and mechanical, which produce them. Because of the lack of exact knowledge upon the subject by the profession, many cases of deformity remain uncured, and scores of children, who could otherwise be relieved, are left to the care of inconsiderate instrument-makers. It is only by the intelligent application of measures fitted exactly to the case, that success can be achieved; and the knowledge requisite to do this is not possessed by the mechanician in any greater degree than is the knowledge necessary properly to care for a medical case a part of the education of the apothecary. Nor has the training of the general practitioner been such as to make him an adept in this branch of surgery, and when it is considered how few are his opportunities for seeing many such cases, it is not strange that extreme deformities are frequent, and that their existence and progression should be an opprobrium. It is only by the dissemination of knowledge by clinical teaching, and the establishment of institutions dedicated to the care of these special cases, that a better state of things may be hoped for, and the importance of such measures cannot be overestimated.

The object of treatment in club-foot is not only to remove the existing deformity, but to restore to the foot its functions; and to do this many procedures have been resorted to, which have been in turn discarded. We may consider the methods now in use as *mechanical* and *operative*. First among the former is manipulation, applied so as to stretch the contracted tissues, passive motion, massage, shampooing, and electricity being used the while to aid in the restoration of function. The hand, if pressure and traction to the contracted tissues could be continuously applied by it, would, no doubt, constitute the best instrument for the relief of club-foot; the apparatus which is best adapted to take its place is that which should be relied upon in the mechanical treatment of the deformity.

Massage and electricity serve, in paralytic cases, to restore, as far as possible, the functional activity of the paretic muscles, and should always be employed as adjuvants in such cases.

Tenotomy for the division of contracted tendons, called aponeurotomy when performed upon fasciæ and aponeuroses, was resorted to first by Delpech, of Montpellier, France. It was not, however, generally employed until Stromeyer, of Hanover, rendered it popular. Little introduced the operation into England, and Dickson, of South Carolina, first performed it in America. To Deltmold, of New York, and Mütter, of this city, however, is due much of the credit of making the operation popular in this country. Opinions differ as to the indications for tenotomy and the proper time for its performance; whether, for instance, in cases of congenital talipes, it should be done prior to the time at which the child is able to walk, or subsequently. No difference of opinion can exist as to the advisability of early operation in cases in which the nature or extent of the deformity renders correction by mechanical means alone impossible; but as experience is the only guide to discrimination, mechanical appliances should always be granted a fair trial before resorting to operation. Rigidity, or the reflex spasm caused by point pressure mentioned by Sayre, is not in itself a safe criterion, nor does excessive deformity, taken alone, furnish a reliable indication.

Retentive dressings, such as splints of silicate of soda or plaster of Paris, are used, either alone or after tenotomy, serving to retain the foot in the position acquired after manipulation or operation. The rubber muscle advocated by Richard Barwell, of London, and extensively used by Sayre, may be employed to take the place of paralyzed muscles; or Scarpa's shoe, as variously modified, may be applied to fix the foot and exert traction.

As I mentioned to you at our last meeting, the type of club-foot with which you will most frequently meet is talipes equino-varus. The principles of treatment appropriate to the mechanical conditions present can be applied to any of the other forms. This deformity is well illustrated by the case I now show you.

CASE II. *Congenital double Talipes Equino-varus; Mechanical extension; Recovery.*—Richard C., æt. four months, referred to my care from the Obstetrical Department of this Hospital. The deformity, which in this case affects both feet, takes place upon an antero-posterior and a transverse plane, combining elevation of the heel, *equinus*, and inversion of the foot, with elevation of the internal border of the sole, *varus*. The os calcis is drawn upward by the contraction of the gastrocnemius and soleus, and rotated in such a manner that its posterior border is turned outward and its anterior border inward. The bones of the tarsus, following the direction of the os calcis, are inverted, and the inner border of the sole raised by the action of the tibialis anticus. The altered relation of the bones of

the tarsus leads to alteration in form, especially of the articular facets; and some have considered these alterations as causative. This is by far the most frequent of the congenital forms of club-foot, and it has been argued that arrest of development in bones and muscles is the principal etiological factor. As the various theories on the subject were discussed in our former clinic, they need not detain us here.

The lateral deflection of the anterior portion of the foot, as compared to that of the normal imprint, is well shown in the following cuts. The outline tracings are from impressions of the feet of patients suffering from various deformities, obtained after the method advocated by Rohmer (*Les Variations de Forme Normales et Pathologiques de la Plante du Pied*, Thèse, Nancy, 1879), consisting of first covering the plantar surface of the foot with lampblack, which leaves a correct impression of the sole upon white paper, on which the patients are then requested to walk. To obtain a correct basis of measurement, and still further to carry out Rohmer's researches as a guide to treatment, I selected the medio-tarsal joint as a base line of measurement; erecting upon it a perpendicular corresponding to the long axis of the os calcis. As they are comparatively stable structures in all deflections from the normal condition of the foot, the *position* and character of deformity could be readily determined by a comparison of the degrees of variation.

In the thirty-two normal feet measured, I have found the angle of deflection, which is represented by an imaginary line passing through the head of the metatarsal bone of the great toe, to range between 26 and 37 degrees (*average*, 20 males, 34.8 degrees; 12 females, 31½ degrees); typical examples may be seen in Figs. 1 and 2, *males*, and Figs. 3 and 4, *females*.

Fig. 1.

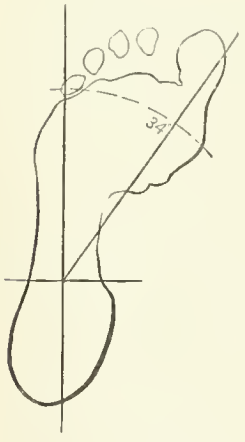
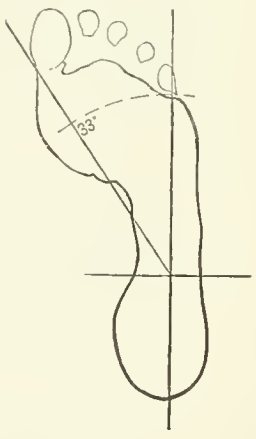


Fig. 2.



In valgus, on the contrary, the angle of internal deflection is reduced to from 12 degrees in moderate cases to 5 degrees in extreme ones, illustrated by Figs. 5 and 6, which represent the imprint of patient's feet suffering from acquired "flat-foot" of rachitic origin. From an examination of seven cases, I have ascertained the average deviation to be about 8¼ degrees.

The adduction of varus has in two instances reached an internal rotation of 63 degrees. I consider all feet that have an internal deviation in excess of 40 degrees as abnormal. An examination of fourteen cases of varus yields an average of 51 degrees.

Fig. 3.

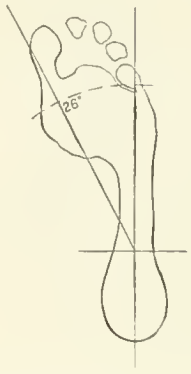
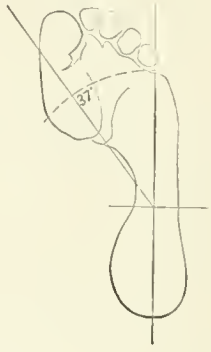


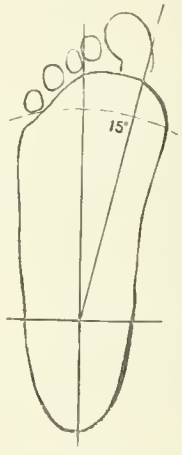
Fig. 4.



This method of measurement I believe to be of importance as furnishing us with an excellent and accurate

Fig. 5.

Fig. 6.



guide to the amount of deformity, as well as affording an opportunity of determining the improvement that may follow any plan of treatment instituted.

Fig. 7.

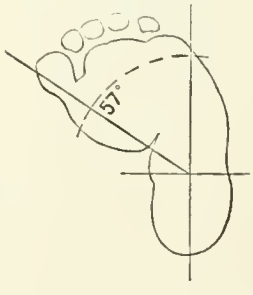
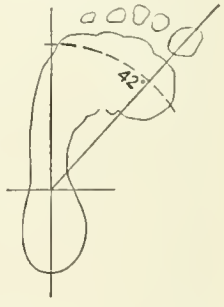


Fig. 8.

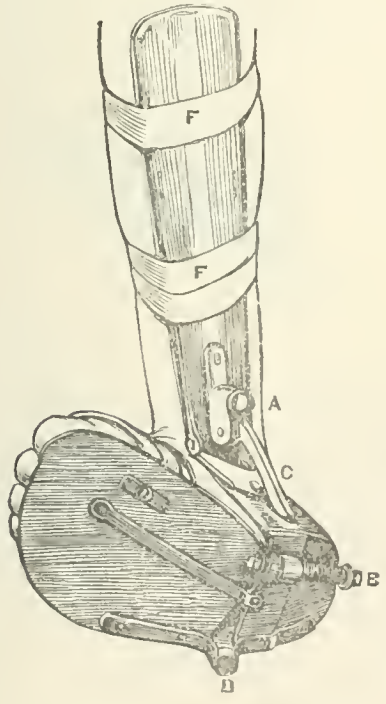


In the correction of equino-varus, as in that of the other compound forms, it is best to divide the process of rectification into two stages, the object being to overcome one of the factors of the deformity before attacking the other. The reason for this will be sufficiently obvious, when it is considered that the altered relations of

the tissues of the foot take place upon two planes at right angles to each other. Our endeavor then should be directed first to the lateral or varus element of the deformity. Manipulation should be systematically used, and while sufficient in very mild cases, is of great service as an adjuvant in severe ones. It should be applied several times daily, and in the following manner: The heel is firmly grasped by one hand, while with the other the anterior portion of the foot is gradually and steadily brought into a position of valgus, and held there for a few moments, then allowed to return to its abnormal position. After the manipulation has been repeated several times at short intervals, the foot may be placed in any light dressing. This splint will retain the foot in its corrected position, and may be modified from time to time to suit the lessened amount of varus. It may consist of material suited to the case. In the milder degrees of the deformity, adhesive plaster wound around the foot and attached to the fibular aspect of the leg answers the purpose, but when greater strength is required splints made of leather, gutta-percha, or hatters' felt may be moulded to the parts, and secured by a roller bandage. These have the advantage over fixed dressings of plaster of Paris in allowing inspection as frequently as may be desired, together with the application of massage, electricity, etc.

But the majority of cases of varus cannot be cured by such simple means. As in this case, which is typical of congenital equino-varus, we have absolute deformity to overcome; tendons and muscles are shortened, and the tissues structurally altered. The so-called

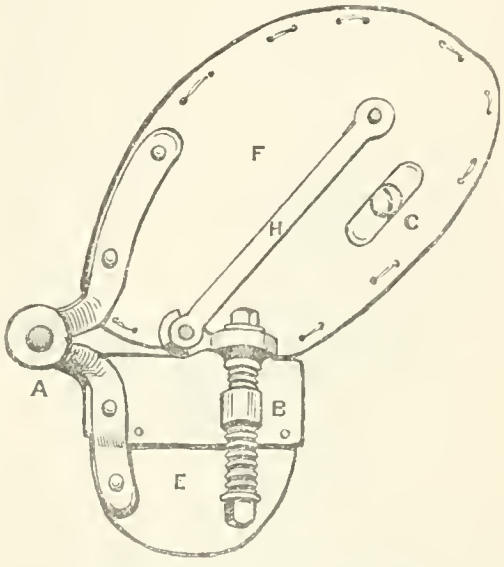
Fig. 9.



"mild measures" will not avail, and time occupied in the trial is wasted. Nothing will be of benefit except the application of instruments, which by their accuracy of construction and power will appropiately stretch the tissues involved, or, after a fair trial of these, operations which will divide the resisting structures.

In such cases the shoe which I now show you (Fig. 9) is of the greatest service. It is a modification of Taylor's ankle support, and in its original form was devised by Shaffer, of New York. To this brace I have given more power by substituting in the sole plate for his extension bar a triple thread screw worked by a key at "B", and by throwing the centre of motion further to the outer side of the sole at "A" (Fig. 10). The in-

Fig. 10.



strument consists of a steel trough fitted to the inner side of the leg extending from the upper part of the tibia to the internal malleolus. A hinge at "C" (Fig. 9), the direction of which is such as to allow pressure exerted upon it at right angles, to operate upon the anterior or lateral deformity, connects this trough with a continuation, or foot portion, which is joined by a plate to receive the foot by an antero-posterior joint, so that the shoe may be accurately adjusted to the "equinus" element of the deformity. The endless screw which I show you at "A" (Fig. 9) is operated by a key, and acts through this hinge upon the anterior portion of the foot. The sole is divided opposite the medio-tarsal joint, and by means of the screw "B" (Figs. 10, 11) acting upon the centre of motion at "A" allows of extreme and powerful abduction of the anterior part of the foot. The apparatus having been applied to fit the deformity, and secured by a bandage ("F F"), the foot is thrown into a position of valgus by means of the screw "A" (Fig. 9) acting upon the hinge "C," and this is supplemented by applying the force of the screw in the sole plate "B" (Fig. 10), which still further acts upon the anterior deformity. It is better to use the apparatus by stretching the tissues several times in succession, and after allowing them to relax, to adjust the brace to the corrected position. Having by these means overcome the lateral deformity, as illustrated in Fig. 12, our attention must be directed to the antero-posterior or equinus element.

To correct this deformity by mechanical means, it is necessary to apply an instrument which, through

the tendo-Achillis, will elongate the contracted posterior muscles of the calf. To accomplish this, many modifications of Scarpa's shoe have been devised. They consist of two steel uprights extending from the

Fig. 11.

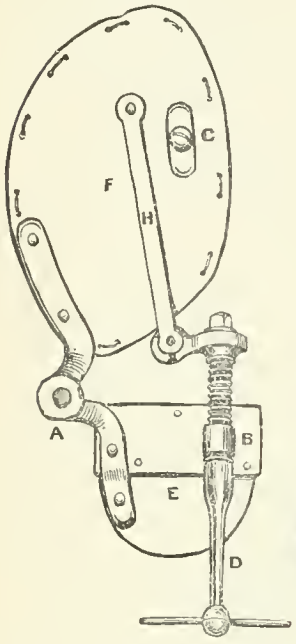
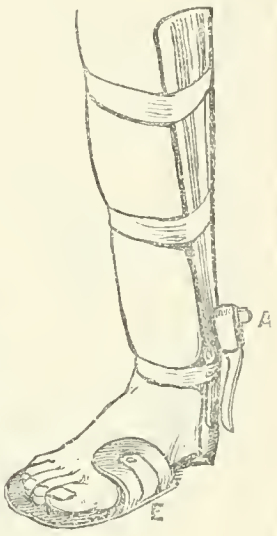
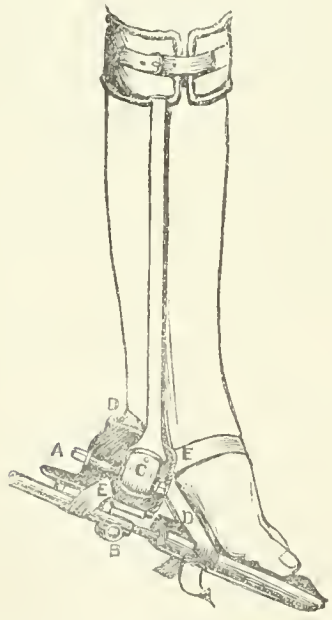


Fig. 12.



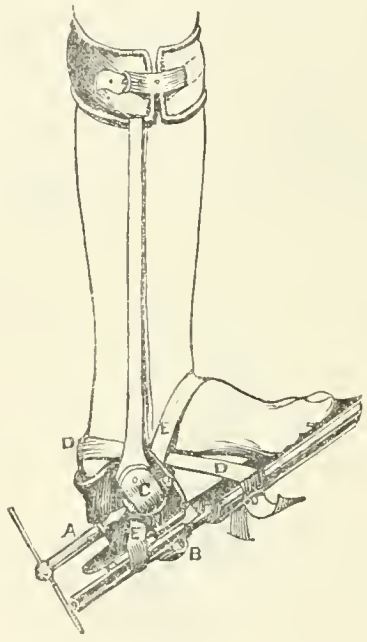
upper part of the tibia to the ankle-joint, and are attached to a heel-cup and sole to hold the foot, the heel being strapped in its place by means of a band of webbing, bandage, or similar material passing over the

Fig. 13.



instep. The sole may, or may not, be divided opposite the medio-tarsal junction. At first sight, such an apparatus would seem to fulfil the indication of applying a force sufficient to flex the foot and stretch the tendo-Achillis, but in practice we find that as the necessary power is exerted, the centre of motion in the instrument being opposite the ankle-joint, the heel-cup slips away from the os calcis, and the posterior border of the foot is found resting upon the top of the heel-cup. To obviate this, Shaffer has in his extension shoe, which I now proceed to apply to this patient (Fig. 13), divided the sole of the brace opposite Chopart's joint, and attached to the anterior portion or sole an extension bar which is worked by a key introduced beneath the heel-cup at "B". The shoe having been applied *extended to* an angle corresponding to the angle of deformity, and the heel secured in its place by a strap passing over the instep "E," the os calcis is further secured by a strap "D" passing around it posteriorly and attached to buckies upon either side of the anterior portion of the sole plate. When flexion is made by the key at "A", which acts upon the endless screw opposite the ankle-joint "C", the tendency of the heel, as you see in Fig. 14, is to slip away

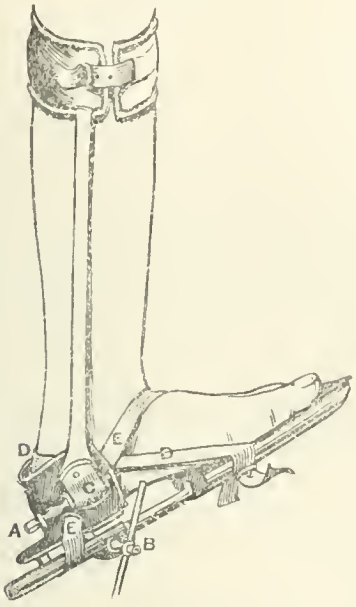
Fig. 14.



and rest upon the upper border of the heel-cup, and the degree of flexion of the foot does not correspond to that of the brace. If now, we insert the key below the heel-cup at "B", and throw the anterior portion of the sole forward, the os calcis is dragged upon by the strap passing over it at "D", and the centre of motion is transferred from a point opposite the ankle-joint, to a point represented by the centre of the strap "E" which passes over the instep, and the heel descends until it rests upon the extension bar. The tendo-Achillis is thus thoroughly put upon the stretch, and may be felt as a tense band (see Fig. 15). The operation is repeated several times at each sitting, and the amount of flexion thus gained is held by readjustment of the brace in the acquired position. No danger need be apprehended from interference with the circulation, if proper precautions be observed; the pressure is not continuous, being rather a *momentary overstretching*, followed by relaxation.

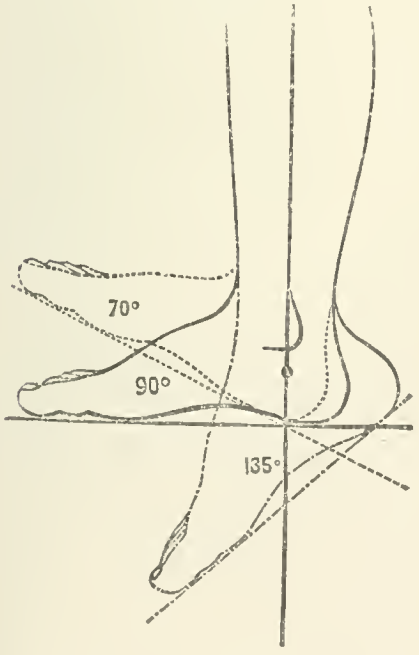
The foot should be inspected daily. After the treatment has resulted in bringing the foot to a right angle with the leg, a retention-shoe with stop-joint should be worn to keep the foot in the corrected position, and a

Fig. 15.



similar apparatus must be applied during the night throughout the treatment. Here let me remark that a cure is not effected when the amount of possible flexion of the foot forms a right angle with the tibia.

Fig. 16.



Referring to the diagram (Fig. 16), you will observe that the normal foot in extreme flexion forms with the leg an angle of about 70 degrees, and at the ankle-joint motion is possible, in the normal condition, through an arc of which the extremes are represented by 135 degrees of extension, and 70 degrees of flexion. Our endeavor in the treatment of talipes equinus should be to make the acquired flexion reach this amount as nearly as possible. In connection with this subject, I wish to call attention to the existence of cases of *incomplete equinus*, designated "non-deforming clubfoot." In this condition flexion is impossible beyond 90 degrees, and the deformity is amenable to the treatment just described.

Case III. *Acquired double Talipes Equino-varus from Tetanoid Paraplegia; Tenotomy of each tendo-Achillis.*—You will recollect the case presented at our last meeting, which comes before us now for operation. In performing tenotomy, much of its success is due to attention to detail. Two tenotomes are necessary; one sharp-pointed with which to puncture the skin, and the other probe-pointed, which is introduced through the puncture, and beneath the tendon or fascia to be divided. The parts having been rendered aseptic by cleansing with a solution of 1 : 2000 of bichloride of mercury, and put upon the stretch by flexing the foot, the puncture in the integument is made over the central portion of the tendon in such a manner that the incision in the skin and that of the deeper tissues shall not correspond after relaxation of the parts. Through this puncture the probe-pointed tenotome is introduced flatwise beneath the tendon, and as close to its deep surface as possible. The cutting edge being now turned toward it, the tendon is divided by a sawing motion of the knife. An assistant keeps the tissues upon the stretch until the operation is almost completed, but relaxes his hold before the tendon is thoroughly divided, to preclude the possibility of the instrument cutting its way through the skin. The tenotome is again turned upon its side, and withdrawn through the puncture, the operator placing his finger over its point of exit, dusting with iodoform, and sealing with a pledget of cotton saturated with compound tincture of benzoin, which forms a pellicle and prevents the entrance of air. After the operation, the foot is placed in the extension brace in order that its degree of flexion may be controlled. This possesses the great advantage over fixed plaster-of-Paris dressings of allowing frequent inspection of the parts.

I shall only mention the operations of myotomy, or division of muscles; tarsotomy, or osteotomy of the tarsal bones; tarsectomy, or the removal of a wedge-shaped piece of bone; open incision, as advocated by Phelps and Hingston, instead of subcutaneous tenotomy; and amputation as a last resort. These are so rarely performed and so little necessary, that it is only essential that you should know that such procedures have been devised.

The next case I have to show you is one of acquired talipes calcaneus.

Case IV. *Acquired single Talipes Calcaneus from Infantile Spinal Paralysis; Application of Barwell's Rubber Muscle; Improvement.*—Maggie B., æt. ten, first presented for treatment in the Orthopædic Dispensary of the University of Pennsylvania. She has kindly consented to appear before you to-day. You will notice the characteristic deformity, the foot being flexed by the action of the anterior groups of muscles, the patient walking upon the heel. In this condition, no treatment does so well as the application of elastic force, advo-

cated by Barwell. The rubber supplies the place of the paralyzed gastrocnemius and soleus, and should be applied as you see in this case. To the shoe are attached two uprights with an antero-posterior joint opposite the ankle-joint. It is important that this joint should be so arranged that while it will permit flexion to any degree, it will stop extension at a right angle. The posterior rubber muscle is attached above to a band which passes around the upper part of the calf and below to the heel of the shoe. Should there be much contraction of the anterior muscles, their tendons may be divided in the manner described, before the application of the apparatus. An operation has been devised for exsection of a portion of the tendo-Achillis for the radical cure of this condition, and consists in the removal of a portion of the tendon, and the stitching together of the divided ends.

The next case I have to exhibit illustrates a very important principle in treatment.

Case V. *Acquired single Talipes Equino-varus; Mechanical extension, Aponeurotomy; Recovery.*—Joseph F., æt. ten years, applied to the Orthopædic Dispensary of the University Hospital for relief from a congenital talipes equino-varus with pronounced *cavus*. The case was treated by mechanical extension, as described when speaking of talipes equino-varus, and resulted in the perfect reduction of the equinus and varus. There remained, however, marked cavus caused by contraction of the plantar fascia. The extension-shoe was applied with the hope of relieving this condition, but without result, when aponeurotomy was resorted to. Several operations were performed, the knife being entered beneath the plantar fascia and the resisting tissues nicked, and the extent of the division was regulated by the degree of relaxation of the plantar arch resulting from each operation. As you see, the boy has made a perfect recovery.

I wish to draw your attention especially to the inefficacy of mechanical means in cases of cavus with marked contraction of the plantar fascia, and the reason will be readily understood if we consider the structure and function of the arch of the foot. In those forms of talipes which depend upon contraction of muscles, mechanical force applied through the tendon will act upon muscular tissue and elongate it. The plantar arch, on the contrary, is constructed with the view of supporting the weight of the body, the tissues entering into its formation are of the most unyielding character, *i. e.*, plantar fascia, and no amount of mechanical power which can be safely applied will suffice in cases in which it is markedly contracted. Aponeurotomy is necessary, and performed tentatively, nicking a little, and repeated as often as necessary, yields the best results.

The last patient to which I shall call your attention to-day illustrates a condition the opposite of cavus, the essential element being relaxation of the plantar tissues.

Case VI. *Acquired double Talipes Planus ("Flat-foot") from Rachitis; Plantar Springs; Improvement.*—John B., æt. thirteen years. This case shows the deformity in a marked degree, the plantar arch being relaxed and flattened, the internal border of the foot resting upon the ground. These cases, in which there is much pain, have received the appellation of "inflammatory valgus." Besides rachitis, the other causes of this deformity are paralysis, ankle-joint disease, and rheumatism. It also occurs in growing children, and in those whose occupation necessitates long standing in one position. In mild cases, the most efficient means at our disposal for its relief, are the plantar springs, which have been applied in this case, with the resulting improvement which you notice. They are made as follows:

A tempered steel spring is placed inside the shank of the shoe, moulded in such a manner as to support the relaxed tissues of the arch, and overcome the tendency of the foot to eversion. In cases of greater severity, it should be supplemented by an ankle support having a pad which will make pressure upon the internal malleolus.

All forms of club-foot may be simulated in the neuromimetic or hysterical conditions. In cases of this kind, the pedal deformity may be accompanied by contractions in other regions, or it may be the only symptom outside the general condition, and the dependence of the local trouble upon the neurotic state may be very difficult to discover. Here, as in neuromimetic affections in other regions, contractions and contractures may so counterfeit their organic prototypes as to render positive differentiation well nigh impossible. In making the diagnosis, the general condition and surroundings of the patient, the hereditary history, together with any fact as to previous mimicry or simulative tendency, should be carefully weighed. The local condition alone is not a reliable guide: the contractions are often as unyielding as in the real deformity; the muscles do not relax during sleep, and the condition may be very persistent. It is only by a careful consideration of each case, and a diagnosis by exclusion, that a correct opinion can be formed.

The care of this condition taxes the patience and ingenuity of the surgeon to the utmost. In few words, the treatment is that of the general neurotic state, coupled with the absolute avoidance of all local manipulations and mechanical contrivances suited to similar local organic deformities, and which would here direct the attention of the patient to the affected member. Despite the most careful general treatment, the deformity may persist for months, as shown by Dr. S. Weir Mitchell,[1] of this city. In this case hysterical single talipes equinus in a young lady of fifteen had continued for two years, notwithstanding the fact that treatment had removed all the more general symptoms of the hysterical state; and it was not until division of the tendo-Achillis, which I performed after consultation with Dr. Mitchell, that the deformity finally disappeared.

ORIGINAL ARTICLES.

PRELIMINARY CONTRIBUTIONS TO THE USE OF A NEW ARTIFICIAL MEMBRANA TYMPANI.[2]

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There has been considerable theorizing as to the function of the membrana tympani ever since its first

[1] Lectures on Diseases of the Nervous System, especially in Women. By S. Weir Mitchell, M.D. P. 129. Philadelphia: Lea Bros. & Co., 1885.

[2] Read before the Cincinnati Academy of Medicine, February 22, 1886.

description by Berengaris, an Italian anatomist, in the fifteenth century (Roosa). In the latter part of the eighteenth century, its middle fibrous layer was described as a muscular layer.

The membrana tympani is found at the bottom of the external auditory meatus, forming the boundary between the middle and external ear. It is about 9 mm. (one-third of an inch) in its greatest diameter, and consists of three layers, viz., the integumentary, or external, the mucous, or internal, and the fibrous, or middle, layers; forming altogether a structure about $\frac{1}{250}$ of an inch in thickness. A small chain of ossicles, three in number, connect the membrana tympani with the middle ear. In its healthy condition it is said to render the tympanic cavity an air-tight space. The vibration of the atmosphere, which is recognized as sound, is carried through the meatus to the membrane, whence it is transmitted by the chain of bones to the fenestra ovalis, or internal ear.

The most frequent cause of destruction of the membrana tympani is the process known as acute inflammation of the middle ear. The reason for briefly alluding to its pathology here will explain itself later on. The tympanum is an irregular space, about one-half of an inch in antero-posterior diameter, one-third to one-half of an inch in vertical, one-twelfth to one-sixth of an inch in transverse diameter. The walls of this space, as well as the ossicles, are lined by a thin delicate muco-periosteal covering, continuous with the mucous membrane of the Eustachian tube. When this membrane is the seat of irritation, it becomes thickened, there is an exudation of mucus and pus—the exudate may be pure pus; the epithelial cells are shed, softening of the tissues due to inflammation takes place, and the membrana tympani, which is the anterior wall of the tympanic space, yields to the increased pressure of the fluids in the cavity.

The membrane may present a variety of appearances. The perforation may show rough edges: there may be more than one perforation; it may be small, or the ulcerative process may sweep nearly all of the membrane away with a portion, or even the entire chain of bones. In cases where the process becomes chronic, there is hyperplasia of the mucous membrane with a formation of nodules and papillary growths. The reparative power of the membrana tympani is very great, but the continued bathing of the middle ear in pus, together with the low form of inflammation, changes the edges of the perforation so as soon to prevent a repair of membrane by granulation.

In considering the physiology of hearing and the requisites necessary for the proper function of all the structures involved, we will see that we must repair the destroyed or altered tissues before we may expect acute hearing. Schwartze states that "any changes within this space which can produce any obstruction to the free vibration of these parts must be the cause of a disturbance of hearing." The theory of the mechanism of hearing, as we find it in many text-books, is that sound proceeding through the meatus striking the membrane causes it to vibrate. The chain of ossicles that are attached to the membrane, and form a system of delicate levers, transmit the vibrations to the labyrinth. Helmholtz has established the theory by experiment that "the power of resonance of curved membranes is greater than those that are tightly stretched," and that this is the condition that we have in the ear. There is claimed to be two curvatures in the membrane, an inward curvature, and a curvature from the handle of the malleus toward the periphery. For perfect hearing, it is necessary that at one time the sound-waves act mostly on the circular, at another time mostly on the radiating fibres of the membrane. Politzer has proven that the chain of bones vibrate, the motions of the malleus, being twice as strong as those of the incus, and four times as strong as those of the stapes.

All of the various theories advanced are open to criticism and it can be demonstrated that they are of but little value. If the vibration of one portion is necessary to hear low sounds, and the vibration of the anterior especially to hear high sounds, how do we reconcile the fact that many patients with large perforations can hear both sounds equally well? On the other hand, if such nicety of motion is necessary between the various ossicles, why does not ankylosis of the joints which follows the different inflammatory actions of the tympanic cavity cause deafness.

That the above theories which have been pretty universally accepted are probably wrong, we shall attempt to prove: it can be demonstrated by a simple clinical experiment. If an individual be taken with perfectly acute hearing and pressure be made on the membrane and the chain of bones so as not to obstruct the sound, but prevent any possible movement of these parts, does it render the ear insensible to sound? On the contrary, hearing is as acute as ever.

It has been pretty conclusively proven that the membrana tympani is not any more essential to hearing than the eyelid is to seeing, yet both are necessary. Its function is wholly to protect the middle ear from the irritating action of the atmosphere. Artificial membranæ tympani were suggested two hundred years ago for the cure of deafness due to perforation and chronic suppuration of the middle ear. But in every instance the application was made with the view to restore the power that the membrane had on the chain of ossicles.

Bauzer was the first to propose this remedy in 1640, by inserting into the meatus a tube of elk's hoof closed at one end by a pig's bladder; but he leaves no record of his cases.

Autenrieth, in the nineteenth century, suggests practically the same thing by using a leaden tube with a fish bladder stretched over one end. Linke reports some good results from this treatment. Yearsley, of London, in 1848, was the first to write about the cure of deafness by the use of an artificial membrane which, in his case, consisted of a bit of sheep's wool curled up and placed in the meatus so as to make slight pressure against the remains of the destroyed membrane. Toynbee some years later constructed an artificial membrane out of a thin circular disk of India-rubber about one-quarter inch in diameter, fastened on the end of a thin silver wire

about the length of the meatus. Toynbee did not lose sight of *his* theory of hearing in the construction of his membrane; it was to act as a receiver of sound; he claimed that the membrane vibrated the same as the natural membrana tympani. These rubber disks often become useless after a few applications; they, in many cases, cause irritation, thereby preventing their use. The wire protruding from the meatus is another objection. In the limited number that tolerate it, there are but few who are benefited by it.

Politzer has modified this invention; he fastens a disk of rubber to the base of a human stapes, by means of thread, and places this in the niche of the fenestra ovalis, claiming for it that sound falling on the affixed stapes is conveyed to the fenestra ovalis, by the inserted stapes. Without comment, we can understand the objection to such a procedure. Hassenstein constructed a small clamp which holds a roll of wadding, this he inserts into the meatus to make pressure on the rim of the membrane remaining, or on the ossicles, and at the same time close the opening.

Hartman constructs an ingenious arrangement out of fishbone which is covered with wadding and placed against the injured membrane.

These and a few other methods have been used for the purpose of improving the hearing in chronic suppuration of the middle ear, but the results obtained have not been in proportion with the efforts that have been made. The main disturbance is undoubtedly in the middle ear and Eustachian tube, and little or no effort has been made to correct this. The suppurative condition is allowed to go on, with the artificial membrana tympani of all of the above observers placed into or over the perforation. Roosa, in his work on diseases of the ear, mentions the membrane as a valuable aid for the cure of chronic suppuration of the middle ear, but he does not explain its action. It certainly acts as an irritant, since patients are advised to wear the rubber disk only a short time each day until they become accustomed to the irritation.

I have treated a number of cases of this kind by means of a substance that will again put the tympanic cavity in its physiological condition—render it an air-tight space. As the source of the pus is the middle ear, and as it oozes out through the perforation in the membrana tympani, would it be good surgery to shut up this secretion by placing a rubber disk over it? Patients improve in hearing in proportion as we are able to restore the involved parts to their normal condition. The meaning of this I can explain no better than by reporting a few cases that I have treated.

Case I.—A. H., aged thirty years, made application for the relief of deafness and a discharge of pus from the middle ear, which had existed for years, with the exception of a few short intervals. The patient had been treated at various times with the result of checking the discharge, but after an acute inflammation of the throat the old trouble began anew. The flow of pus was profuse. An examination revealed a perforation through the membrane, almost circular in shape, about one and one-half lines in diameter, situated in the lower anterior segment. On the left side the perforation was considerably larger, about two inches; the mucous lining of the tympanum was very much thickened; sensitive to the touch and bled readily when handled. The hearing power was considerably reduced, patient could hear a watch tick ten inches from the ear on the right side, eight inches on the left side.

He was very impatient with the ordinary methods of treatment, since the trouble recurred sometimes after the slightest exposure. The middle ear was now daily cleansed by means of the probe and cotton, the Eustachian tube and posterior pharyngeal wall were treated by the application of yellow oxide of mercury ointment applied through the nose, and the tube and middle ear inflated by means of Politzer's air-bag.

This plan of treatment was continued for about a week, when the discharge ceased. The middle ear was also medicated by the ointment on a pledget of cotton, until the parts looked perfectly healthy. I now applied a strong solution of cocaine to the membrane and middle ear, to render them less sensitive. A circular disk of surgeon's rubber adhesive plaster, as nearly the size of the natural membrane as it could be made, was carried to the bottom of the meatus with a delicate angular forceps, so as to close the perforation, and cover the entire membrane. It was pressed in place by means of a cotton-wrapped probe, until it had become firmly adherent, thereby forming again an air-tight space of the tympanic cavity. Inflation no longer yielded the perforation whistle, but the sounds were the same as when a healthy ear is inflated. The hearing was not tested immediately after the application of the plaster.

Patient was asked to return on the following day, for the purpose of inspection. From the observation of others it seemed natural to expect a certain amount of irritation from this foreign body; but it caused no pain, nor a trace of irritation—in fact, the patient did not know, for a few days, whether the disk of plaster was still in the ear or not, except that he could not blow air through his ear, nor could he hear the puff of air when he blew his nose. So the patient continued until he was discharged, when his hearing was perfect, the membranes firmly in position as from the beginning, causing no pain, with hearing absolutely perfect, not only for the watch and conversation, but also for musical sounds of high or low pitch (patient was a musician).

Did this piece of thick sticking-plaster possess acoustic properties, as those described by Helmholtz of the natural membrana tympani, which were absolutely necessary to the proper perception of all kinds of sound? Did the chain of ossicles transmit sound *more* freely now than on the second day after the application of the plaster, when the hearing was found to be but little increased above what it was prior to the introduction of the little disk? Does it not seem that all speculations as to the position and curvature of the membrana tympani are erroneous?

Case II.—The second case differed, in some respects, from the one just reported; we will, therefore, mention only these few points: Wm. S., painter, aged eighteen years, suffered from acute suppuration of middle ear when three years old, as one of the sequelæ of scarlet fever. Since then the discharge

from the ear has continued. The perforations on both sides were quite large, the middle ear was almost filled with a mass of granulations. Air could quite easily be forced through the Eustachian tubes by Valsalva's method. Hearing was reduced to contact on one side, and pressure of the watch against the head on the other side. The treatment was the same as in the first case, but the result was not so good, nor could we expect it. One month after the introduction of the adhesive disks he had improved to hearing the watch at eight inches on one side, and ten inches on the other.

Case III.—Harry S., aged thirteen years, made application for the relief of a chronic otitis media on the right side, which had existed ever since childhood. Hearing was very much diminished, the watch could be heard at a distance of only two inches. The perforation was not large, about one line in diameter, but the low form of inflammation existing for such a length of time had caused quite a damage to the middle ear. After cessation of suppuration the hearing had improved to nine inches This gradually increased, after the perforation had been closed by a disk, to perfect hearing. This last case was examined but yesterday, three months after the operation. The adhesive plaster is in perfect position, and the ear can be inflated without any leakage, although it has been in place three months.

Of the five cases that I can report until now, not one has been inconvenienced by the operation. Cocaine was used to render it painless. No little surprise is manifested at the statement that the disks introduced nearly five months ago are still in proper position, and are just as white and clean as at first. Compare this plan of operation with the use of the artificial membrana tympani above described and introduced as recommended. True, the patient cannot introduce this membrane himself; it is not an easy matter to carry out properly by the physician; but when once introduced it is not in the way like that of Toynbee and others; it need not be removed for cleansing, etc., but becomes, in a measure, a part of the patient himself.

The number of cases treated is small, but the results have been exceptionally good. We need not expect to restore absolutely the hearing of all cases, since irreparable damage may have been done to the ear by the disease. By this procedure I really anticipated more than I have reported; more than a closure by a foreign substance, which is tolerated against the membrana tympani with impunity, and a great improvement of hearing. I expect the closure of the perforation under the adhesive plaster, but I am not able to persuade a single one of my patients to allow me to remove a disk to see in what condition are the margins of the perforation. The improvement of hearing was not immediate, as in the cases reported by Politzer and Troeltsch, but gradual, keeping step, as it seemed, with the restoration that was going on in the middle ear, in consequence of its complete closure.

The failure to cure many cases by the use of Toynbee's membrane, or the wad of cotton, is because of the pathological condition existing in the middle ear. The natural membrane protects only the middle ear, and has nothing to do with vibration. Other things being equal, sufficient sound is carried through the membrane and tympanic cavity by means of the column of air that exists in this space.

REMARKS ON SYPHILITIC DISEASE OF THE LUNGS.[1]

By EDWARD T. BRUEN, M.D.,

Assistant Professor of Physical Diagnosis in the University of Pennsylvania, one of the Physicians to the Philadelphia Hospital, etc.

Before the days of Laennec, indeed from the time of Morgagni in the early part of the eighteenth century, attempts have been made to define the distinguishing features of syphilitic pulmonary processes. In describing syphilitic phthisis, writers have mostly contented themselves with stating that this disease had some influence, more or less distant, on the causes which determine phthisis.

At the present time, while abundant evidence exists relative to the inherited pulmonary syphilis of infants, one cannot affirm that the clinical features of the syphilitic impress on the adult pulmonary substance is as definite as its clinical impress upon many of the other organs and tissues of the body. There has been a paucity of necropsies in the earlier stages of possible pulmonary syphilis, and Greenfield,[2] in his account of five cases of pulmonary or laryngeal lesions out of twenty-two cases of visceral syphilis, says that the pulmonary changes differ but little, if at all, from those which might be produced by other chronic inflammations affecting these particular regions, and he states his belief that the evidence that the pulmonary change in his cases is due to syphilis, rests partly on the analogy with other results of syphilis elsewhere, and partly on the exclusion of other probable causes. Goodhart, from autopsies in Guy's Hospital records during twenty-two years, found 38 cases of chronic lung disease attributable to syphilis, and did not think it possible to distinguish histologically the changes due to syphilis, yet he described certain definite microscopic appearances.

In the Philadelphia Pathological Society,[3] Drs. Pepper and Warder report a case of pulmonary syphilis with autopsy; but in this instance the principal lesion was gummata in the pleura and lung, associated with other pulmonary lesions which were probably secondary. Recenty the number of reported cases of pulmonary syphilis have increased. Paucritius,[4] of Berlin, reports over 110 cases of various forms of syphilitic affections of the pulmonary system, but is impressed with the frequency of an interstitial pneumonia or induration of the connective tissues following the track of the bronchial and pulmonary arteries for a certain distance from the hilus of the organ into its interior.

Reginald Thompson[5] reports over sixty well-marked cases with peculiar physical signs distinguishing the

[1] Read before the Philadelphia County Medical Society, January 20, 1886.

[2] London Path. Soc Trans., vol. 28.

[3] Transactions for 1877 and 1878.

[4] Lungen Syphilis, Berlin, 1881, p. 235; British Med. Journal, Feb. 4, 1882.

[5] British Med. Journal, Feb. 10, 1877, and Aug. 28, 1880.

disease, and which were relieved by antisyphilitic remedies. Frederick Robinson,[1] Gamberini,[2] Schnitzler, Rollet,[3] and Fournier, have also defined certain lesions with special symptoms as due to syphilis. And again Robinson describes two forms of pulmonary syphilis, one in which the greater part of the organ was involved, with the disease appearing primarily at the base extending through the entire lung, posteriorly as well as anteriorly to the apex, and another in which the disease was limited to one or both apices. He adds that the patient in both cases had passed through the stage of secondary syphilis, and the constitution was left free from any outward manifestation of disease, and regarded the first-named condition as "exhibiting little if any difference between it and ordinary pneumonia." He based his differentiation of the syphilitic condition upon the more extensive involvement of the lung in syphilis, and also that the premonitory symptoms local and general were less apparent. Further, in specific pulmonary processes he thought that there was "little if any pyrexia, dyspnœa only in exertion, little or no sputa, and ultimately recovery takes place."

The literature of this subject also includes[4] Mohamed's case of early fibroid syphilitic disease of the lungs, but he also considered the specific character of this growth entirely an open question; and Pye Smith, in reporting a possible case of syphilitic pulmonary disease, writes: "between this syphilis pulmonum and chronic interstitial pneumonia, there is, I admit, no anatomical difference." He bases his distinctive criteria upon the associated changes in the other viscera, and on the reaction to treatment. Green[5] says that the specific fibroid processes differ but little, if at all, from those met with in chronic fibroid phthisis, in chronic pneumonia, and certain forms of pulmonary induration. He urges, however, as distinctive the origin of the growth from the nutritive or bronchial arteries, rather than from the peribronchial or perilobular tissues. He adds, that the changes in the inner coat of the small arteries of the brain in visceral syphilis described by Huebner and Greenfield, have not been shown to occur in pulmonary vessels.

A more recent contribution to this subject is by Porter,[6] of New York, before the New York Post-Graduate Clinical Society, based on 100 cases of pulmonary disease with a positive syphilitic impress, and selected from 1000 cases treated at his clinic. Of the remaining 900, many had pulmonary lesions, and diseases of the various organs, which, in his opinion, were of syphilitic origin, and which, as a rule, responded to a certain line of treatment. In the discussion which followed the presentation of the paper, the experience and opinion of Sturgis and others showed that specific pulmonary processes were less common, considering the great number of adults who had syphilis.

Finally, the writer's observation of pulmonary disease as occurring in the Philadelphia Hospital, covering a period of ten years, has led him to form an opinion that syphilitic processes, excepting in the form of gummata, are infrequent in the lungs. Phthisis in its various forms, however, he has noticed as quite common in syphilitic subjects, arising in the ordinary etiological relation, the deterioration of the general health of syphilitic subjects possibly acting as a predisposing cause; and since the process is oftenest subacute or chronic in these subjects, the symptoms indicate fibroid change as a principal lesion, although in some cases rapid disintegration of the lung ensues. He has, however, notes of a number of cases of gummata in the lung, the pleura, and from the periosteum of the ribs or sternum; but in these cases any distinctive specific features in the associated pathological appearances were wanting to distinguish from the ordinary lesions of catarrhal or tubercular phthisis.

Diagnosis of Pulmonary Syphilis.—I have selected the case of the patient who is now presented, because his history represents a fair example of the clinical features which may be ascribed to pulmonary syphilis.

John C., aged thirty, of healthy parentage, with no inherited tendencies to pulmonary disease, came into the Philadelphia Hospital in February, 1885, with secondary syphilis and characteristic eruption. Within two months of his admission physical examination revealed the signs of consolidation of the apex of the right lung, followed shortly by unequivocal signs of consolidation of the whole upper lobe. In May, general periosteal symptoms developed with inflammation of the ankle-joint. Preceding the development of symptoms of pulmonary consolidation, marked laryngitis with bronchial catarrh existed. The temperature ranged from 100° to 103° for nearly six weeks. At date the physical signs of implication of the upper lobe of the right lung persist, although the process is stationary. There is marked evidence of periosteal thickening and tenderness of the clavicular, tibial, and sternal periosteum. No bacilli have ever been found in the sputa.

In commenting upon the diagnosis of this case, it is evident that it cannot rest upon the physical signs by auscultation or percussion, for these are certainly never characteristic, but the diagnosis in this, as in most cases, must be inferential from the rational history, the periosteal tenderness, and perhaps the absence of bacilli from the sputa.

Pulmonary syphilis is said to develop usually within two to five years from the date of infection, or as late as ten or more years. In the above case the lung implication was much earlier, *pari passu*, with the evolution of the symptoms of secondary syphilis.

The attack of laryngitis during the initial stages is an important symptom, according to most authorities. Yet, as showing the diversity of opinion, Schnitzler lays particular stress on the relation of pulmonary syphilis to specific affections of the larynx, on the simultaneous appearance of the lesions, and the confirmation of syphilis of the lung through coexistent disease of the larynx. On the other hand, in only one of Goodhart's thirty-eight cases, already cited, was the larynx noted to be diseased, and the intestine in only three; while the same author observes that out of 100 post-mortem examinations in ordinary phthisis the larynx has been affected in 24 per cent., and the intestine in 46 per cent.

[1] Lancet, London, May 5, 1877.
[2] British Med. Journal, Jan. 1, 1881.
[3] Wiener med. Presse, Oct. 1879.
[4] London Pathological Society, vol. 28
[5] Op. cit.
[6] New York Medical Journal, August, 1885.

Most authorities lay stress upon the presence of external evidences of syphilis in cases of specific pulmonary disease, yet Mr. Hutchinson has advanced the opinion that visceral and tertiary changes are in inverse ratio to secondary visceral symptoms.

Finally, the distribution of the lesion in the case presented may be considered as tallying with the observations of very many clinicians, but after careful examination of the literature of this subject I would affirm that no satisfactory diagnostic clinical deductions can be made from the location of the lesion, since professional opinion is so widely diverse. Taking Porter's recent paper, in his opinion the apices, on one or both sides, would be the most usual seat of implication, while Goodhart and Green describe the process as affecting the bases of both, or the roots of the lungs, the new growth springing from the bronchial or interlobular bloodvessels, and they state that the vascularity, and the fact that it does not originate in the alveolar or bronchial wall, are the most valuable evidence we possess of the syphilitic nature of the fibroid induration. Again, if the pulmonary lesions are introduced by an attack of pleurisy, the process in the lungs is usually located at one or both bases.[1]

It is claimed by many writers that specific pulmonary lesions disappear under antisyphilitic treatment, but it should be remembered that mercury and iodide of potassium have the property of causing absorption of infiltrations from whatever cause. And, further, whatever may be the results of treatment, if the process be gummatous the clinical results in effecting the resolution and reabsorption of connective tissue hyperplasia are, to say the least, not encouraging.

To give an example of the sort of case which is often considered an example of late pulmonary involvement ten or twelve years after infection, I have selected from my note-book the following history:

A gentleman in 1872 contracted syphilis. He had secondary symptoms, mucous patches in the mouth, alopecia, periosteal pains, etc. These recurred at intervals for a year or two, and then ceased entirely. In the spring of 1883 he began to have lightning pains in the legs, and shortly afterward discovered an absence of patellar tendon reflex. During the summer, ptosis of right eye occurred with enlargement of the pupil, and his general health was much impaired. In May, 1884, although of perfectly healthy stock, with no hereditary predisposition to lung trouble, he contracted an acute laryngitis, which was persistent, and soon followed by general bronchitis. In July, of the same year, slight dulness appeared at right apex with râles at same point, and a few râles, also, at the left apex. The temperature was never high, 100° to 100½°, a few times 101°, with moderate night-sweats. In September, 1884, went to Colorado, and since then all the physical signs have improved, including cough, fever, etc., and the only evidence persisting at date is a slight depression above the clavicle. During the entire course of this history he took iodide in as large doses as the stomach would bear, with occasional use of mercury. At this date he suffers from lightning pains in legs; but there is now a slight response to the patellar tendon, and sometimes a severe nocturnal headache. No bacillus ever discovered in the sputa.

Comments.—This case inferentially might be classed as representing visceral syphilis, and the pulmonary symptoms some part of the general invasion, yet surely the diagnosis could not be regarded as positive.

Dr. John Guitéras, of the Marine-Hospital Service, has sent me a description of certain cases which he had seen at Key West, which he has thought might be considered as indicating specific pulmonary trouble. There were five such cases; all males, three colored, two white. In four of them the left base was implicated, in one the right. The youngest was twenty-five years of age, and the oldest fifty-two years. The history of the first case, which is given in synopsis, is representative of the others.

Case I.—A powerful young mulatto, about twenty-five years of age, complained of suffering for two months with more or less constant, often severe, pain in the left side, and a dry cough, very harassing except when it brought blood. He frequently expectorated blood for three or four days in succession, and then no hæmoptysis would occur for a week or more. The amount of blood expectorated never exceeded (in one day) two ounces, seldom more than one ounce. The blood was sometimes, during the same day, bright red, mixed with mucus; sometimes dark and lumpy. The emaciation had been rapid. The expansion of the lungs was good when the pain was not great. There was an area of slight impairment of resonance on the left side, not extending higher than the seventh rib, but of indefinite outline, and quite difficult to detect. On auscultation there was feeble respiratory murmur, and crepitation higher than would be expected even on the days when hæmoptysis occurred. The crepitation was most distinct, and often limited to inspiration. Sometimes the crepitation was modified by the cough, and seemed to occur in patches, indicating a pleural etiology for the râles. The physical signs suggested localized pleurisy, with small areas of some variety of infiltration of the underlying pulmonary tissue. He was given small doses of iodide of potassium and ergot; but the marked improvement within two weeks suggested an increased dose of the iodide of potassium, and recovery ensued in a little over two months.

The first marked symptoms were, in all cases, pain and hemorrhage, hacking cough, loss of appetite, and feverishness, though the temperature never rose above 101°. In the first day or two after the days on which hemorrhage occurred the evening temperature was 100°–100½°, with normal morning temperature. In the days of interval between the hemorrhage the temperature was normal. Hæmoptysis before treatment was frequent, patients seldom passing a week without hemorrhage, which might last from one to ten days.

Periods of time, varying from one year to four years, had occurred in all five cases between the manifestation of the lung trouble and the last secondary manifestations. All cases were characterized by anæmia, and all recovered completely and rapidly under treatment, as mentioned, so far as the

[1] Ferguson: Some Points in the Relation of Syphilis to Pulmonary Diseases, The Medical News, Jan. 17, 1885.

lung trouble was concerned, but previous to treatment the progress of the cases seemed rapid.

Two of the cases subsequently were submitted to specific treatment, for tertiary bone trouble. In each of the cases the friends of the patients had considered them consumptives.

In conclusion, let me present a brief summary of the symptomatology which has been attributed by the various authorities already mentioned to the clinical picture of syphilitic pulmonary disease.

Symptoms.—The subjective symptoms are numerous, but are often preceded by catarrhal processes in the larynx and bronchial mucous membrane. They are followed by a sense of discomfort, oppression, and uneasiness at the root of the neck, which may increase till actual pain is felt, usually located in the back between the scapulæ, but sometimes radiating through the intercostal nerves around the chest. There may also be difficult respiration, with more or less dyspnœa, especially in the mornings and evenings, besides a sense of heaviness and oppression in the chest, with a feeling of inability to inflate the lungs. These symptoms may be increased on exertion, respiration becoming wheezing, with imperfectly developed asthmatic attacks. Hoarseness, with varying degrees of aphonia, more or less dysphasia, or unequal pupils may be present. In what may be termed the prephysical sign stage, cough may be an initial symptom. It is dry and paroxysmal, with more or less dyspnœa; and, perhaps, like some of the other subjective symptoms, might be attributed to pneumogastric irritation. Rheumatic and nervous symptoms, including sleeplessness and deterioration of the blood-crasis, may testify to the syphilitic infection of the blood.

Objectively, the chest is reported as better developed in the specific form of pulmonary phthisis than in the various analogous forms of pulmonary lesion. The patient may have the appearance of full health. Moxon relates the case of a man employed in carrying sacks of grain, and who was suddenly killed. It was found that he had fibroid induration of a great part of the right and left lungs, besides scars in the liver and testes. When the disease has advanced the ordinary cachectic appearances of phthisis are developed; but the process peculiar to syphilis is, in such cases, long past.

Physical Signs.—The only physical signs, which seem of especial value, are the periosteal thickening of one or both clavicles, substernal tenderness, and œdema, thickening of the tibial periosteum;[1] possibly, also, the absence of bacilli might be included as of importance. The percussion evidences of enlargement of the bronchial glands may be decided. The respiratory murmur may be feeble in volume, and limited to inspiration, especially over the interscapular region.

In one or the other bronchus the respiratory murmur may be more highly pitched than in health, and slightly exaggerated on one side, or at the base of the chest, according to the location of the specific process. The respiratory rhythm is often jerky and paroxysmal. A peculiar alveolar rustle, resembling the sound produced by the rumpling of wall-paper, has been alluded to by Reginald Thompson as characteristic. The absence of râles is commented on by many authorities, and by Porter is explained by the dilated and moist condition of the smaller bronchi; he holds that bronchial râles are produced by the separation of the walls of the finer divisions of the bronchi. Hæmoptysis is infrequent, but is possible through the rupture of newly developed bloodvessels in the new formation in the lung or hemorrhagic infarction of newly developed bloodvessels. The temperature seldom rises much above normal. Inspection and palpation may reveal only a well-developed chest, or the displacements of the viscera common to fibroid forms of phthisis.

All these signs very carefully recited by well-recognized authorities demand attention, but it seems very difficult to assign to them a high degree of value. Certainly these, as well as additional physical signs in specific pulmonary processes unassociated with gummata, must be shared by other forms of fibroid phthisis. When cavities occur, the physical signs cannot be significant.

The specially diagnostic features have already been indicated as including the rational history, the periosteal tenderness, the evidences of the fibroid character of the growth, including dyspnœa, and usually, but not invariably, a low thermometrical record. Perhaps also the absence of bacilli from the sputa, and the dry character of the cough, with recurrent and frequent hæmoptysis.

Summary of Pathological Changes.—1. It may be doubted whether syphilitic pulmonary processes should be entitled syphilitic phthisis because, as Pye Smith observes, that phrase reduces a capital distinction in etiology, prognosis, and treatment; but it would appear that there is a form of pulmonary consolidation which is principally a chronic interstitial hyperplasia, which, by many competent observers, has been etiologically associated with syphilis. "In the case of tubercle the cells are heaped together, and rapidly undergo degeneration apparently from mutual compression and destruction. In syphilis the cells are more distinctly separate, and the mechanism of degeneration appears to be entirely distinct. Mingled with the sound cells, other cells of fusiform or irregular shape soon appear, and these, in their growth, are transformed into a very complete tissue, much resembling granulation tissue or sarcoma. This growth is highly *vascular*, the cells are frequently of large size, the protoplasm abundant, and the nucleus and nucleolus distinct. Indeed, the growth seems to be in a process of very complete organization. But at this point a change seems to occur, sometimes suddenly. The tissue remains apparently the same, but its vitality is evidently lost, the outline of the growth and the vessels can be seen, but they do not stain with carmine or logwood, and they become of a dead-white color."[1] The vesicles are described as being filled with "red blood-disks, leucocytes, desquamated epithelium, and fibrillated fibrin, identical with that found in the second stage of a lobar pneumonia. Others are filled with de-

[1] Porter "has observed that when the sternum is excessively sensitive the tibial crests are less so, and *vice versa*." See also Levin: THE MEDICAL NEWS, Aug. 15, 1885.

[1] Greenfield, op. cit

colorized round cells, or with round, distinctly nucleated epithelium cells, of a diameter varying from one-fifteen-hundredth to one-two-thousandth, others contained granular degenerating material, which would not stain."[1] In other words, a degenerative catarrhal pneumonia. Cheesy masses occurring in the lungs appear as encapsuled masses rather than as diffused centres of softening. Enlargement and pigmentation of the bronchial glands, associated with evidences of bronchitis with peribronchial thickening, and, possibly, narrowing of the bronchial passages, as compared with non-syphilitic forms of similar lesions, in which the bronchial tubes are more widely dilated. Cases have been reported of nodules of syphilitic new formations in the superior and inferior extremities of the trachea and larger bronchi. The nodules may ulcerate, and, in healing, form cicatricial bands of fibrous tissue, which cause contraction of the tracheal tube transversely, or diminish its length.

The indurative hyperplasia, according to Green and Goodhart, commences around the small interlobular bloodvessels, and not in the alveolar and bronchial walls. The fibrosis is attended with puckerings of the pleura, and is less evenly spread over the lobe than in chronic pneumonia, is nodular rather than diffused. It differs from miner's phthisis in wanting the extreme dilatation of the bronchial tubes, and possessing greater solidity from greater cell-growth. Pleural inflammations are also mentioned, especially thickening. It is evident to the writer, from his experience, that much is yet to be learned on this important subject before a definite conclusion can be formulated; and the final adjustment of the relation of the bacillus tuberculosis to the etiology of pulmonary tuberculosis must be awaited.

2. There is no doubt that gummatous formations in large or small nodules are sometimes developed in the lungs or the pleural tissues, or the periosteum of the thoracic bones.

3. The usual forms of pulmonary phthisis apparently developing in consequence of impaired general health, induced by syphilis, is quite frequent.

4. Pulmonary lesions of a syphilitic character in the fœtus, or in syphilitic infants, are unquestionable.

Prognosis. Treatment.—The testimony of many competent observers seems to point to successful treatment when the usual drugs, viz., mercury and iodide of potassium, in large doses, are administered. The prognosis, it would seem, depends upon an early recognition of the trouble. The ravages of the specific process, however, often produce such loss of substance in the lung that the lesions are irreparable; and, therefore, we cannot always accomplish the brilliant results which usually attend an antisyphilitic treatment when the other viscera are invaded.

ON SPONTANEOUS PHLEBACTERIEKTASIA OF THE FOOT.[2]

By A. G. GERSTER, M.D.,
of New York.

During the past year two cases of this rare and interesting morbid condition came under my observation in the German Hospital. Both patients were boys—one fourteen, the other eighteen years old—and in both cases the beginnings of the disturbance belonged to infancy. The older one declined operative treatment, and withdrew from observation. The history of the patient presented is as follows:

Robert Klaile, æt. fourteen, a well-developed boy, was admitted to the German Hospital, July 2, 1885, on account of a number of rebellious ulcers situated on the dorsum of the left foot. The condition was said to have existed since childhood; no injury was remembered. Physical examination of the internal organs revealed their normal state, with the exception of the heart, which was found to be enlarged, and evidenced a marked increase of the energy of its pulsations. The femoral arteries of both sides were found to beat with unusual strength, and, when somewhat compressed, gave rise to a strong whirr, both to be felt and heard by the stethoscope. On inspection, an increased size of the left foot became manifest, the hypertrophy pertaining to the soft parts as well as to the bones. The length of the right foot was 24 centimetres, that of the left foot 25 centimetres. Their circumference was 23 and 24 centimetres. The dorsum, as well as the sole of the left foot was occupied by a doughy, soft, nodular swelling of irregular and not well-defined outlines. The skin of the plantar surface was normal; but on the dorsum, along the course of the saphenous nerve, a series of roundish, irregular, rather hard, dark blue, partly confluent nodes could be seen. They were partly covered with a thick layer of rough epidermic scales, partly by a closely adherent dry scab. Attempts at removing this were followed by rather copious capillary hemorrhage. Their general aspect was that of teleangiektatic nodes. A number of enlarged veins surrounded these nodes, and could be plainly seen through the skin. If pressure was exerted on the swellings, they could be made to disappear, or at least diminish in size, and also a deep-seated pulsation of the whole mass became at once evident. Compression of the femoral artery promptly suppressed the pulsation, and while the compression of the main trunk lasted the swelling did not resume its former size. On the other hand, if the artery was compressed while the tumors were turgid, pulsation ceased, but there was no appreciable decrease of the size of the swelling to be observed. The stethoscope gave evidence of a strong arterial bruit all over the swellings. There was a marked difference in the temperature in favor of the left foot.

It seemed clear that we had to deal with a mixed angioma, containing the elements of both a cirsoid aneurism and of teleangiektasia with phlebektasia. As there was no history of a gross lesion of the bloodvessels, a chronic inflammatory alteration of the entire vascular apparatus of the foot had to be assumed, which by this time had also reacted upon the femoral arteries and the heart, inasmuch as they too were found to be hypertrophied.

An ablation of the diseased part was proposed, but declined; wherefore having explained the not inconsiderable danger of a deligation of the main artery, and having vainly tried elastic compression

[1] Porter, New York Medical Journal, August, 1885.
[2] Read before the New York Surgical Society, March 8, 1886.

for a considerable time, the patient was anæsthetized on July 7th, and the superficial femoral artery was tied in Scarpa's triangle. Pulsation ceased for a time, but became faintly but clearly noticeable about ten minutes after closure of the vessel; whereupon the external iliac artery was exposed and tied. Pulsation did not return after this. The wounds were closed, not drained, and the limb was enveloped in a thick swathing of cotton batting.

The course of the healing of the wounds was undisturbed and feverless, but the circulation in the limb became so depressed that serious apprehensions were entertained in regard to its preservation. The toes, especially the first and second, were cold and livid, their sensibility was destroyed, and in the course of the first week necrosis of the integument of the terminal phalanges became manifest. At the same time the skin on the outer and posterior aspect of the limb, exactly over the course of the peroneal muscles, sloughed; and on being removed, necrosis of the entire belly of the peroneus longus was ascertained. A fortnight after the operation, the muscle was removed. It had the aspect of a pale, waxy, translucent substance. There was hardly any suppuration, and it was deemed advisable not to leave the sequestration of such a large mass of tissue to the rather uncertain and risky efforts of nature. The toes were also removed. The patient was discharged cured in October, and no pulsation or increase of the tumors were noted at the time. The size of the swellings was somewhat smaller than before the delegation, but there was no hardening or marked shrinking such as would follow obliteration: on the contrary, the dough-like consistency had remained unaltered.

Patient was readmitted to the hospital in Jan. 1886. Pulsation had returned and was just as evident as before the operation. The teleangiektatic spots were all supplanted by ill-conditioned ulcers. The metatarso phalangeal joint of the great toe was open and suppurating, and the boy complained of much pain and discomfort due to the ulcers.

Pirogoff's amputation was done Jan. 29, 1886, with the aid of Esmarch's band: the sections of an unusual number of large vessels, twenty-seven, were taken up and tied before; eleven more ligatures were applied after the removal of the constriction. The segment of the calcaneum was nailed to the tibia, and the wound closed by an interrupted catgut suture. Drainage was effected through a counter-opening made alongside of the tendo Achillis. The first dressing was removed twenty-one days after the operation, and the wound was found firmly united, except along a small portion of the suture, where the rather fine catgut had been absorbed too soon. This narrow strip of granulation, together with the track of the nail, was found cicatrized over five days later, when the second dressing was changed.

The patient has a good stump, and walks on it without support.

A very excellent anatomical study of a case of considerable magnitude, by W. Krause, will be found in the second volume of Langenbeck's *Archiv*, published in 1862. Nicoladoni has also reported three cases: two in vol. 18, pp. 252 and 711; the third one in vol. 20, p. 146, of the same periodical. All, with the exception of one reported by Nicoladoni, were affections of the upper extremity, which is said to be the favorite site of the disorder. Both cases seen by me involved the foot; one the left, the other the right. I may add, that the other case presented, especially as regards the local appearance and situation of the malady, an almost identical state of affairs as the case before you, only of less development.

As regards the treatment, the case presented bears out the experience of others, inasmuch as it demonstrates the futility, in the more extensive cases, of less radical measures than ablation.

MEDICAL PROGRESS.

Combination of Iodoform and Nitrate of Silver as a Caustic.—Malthe speaks highly of the following caustic and alterant treatment in torpid chronic ulcers and fistulæ. The surface in question is sprinkled with iodoform, then the lunar caustic is applied thoroughly, and finally the sprinkling with iodoform is repeated. A slight effervescence is produced with evolution of nitrous acid, iodine, iodide of silver, and perhaps also nitric acid and other combinations, all of which bodies act in their nascent state upon the tissues. The ulcers heal with comparative rapidity, and are protected by an antiseptic layer of iodoform and iodide of silver.—*Journal de Médecine*, February 21, 1886.

Efficiency of Commercial Pepsin and Papain.—Dr. William Murrell records the careful examination of the digestive power of thirteen specimens of commercial pepsin, some of English, others of French, German, or American manufacture. They were all active, but in many the proteolytic power was very small. Only four came up to the standard of the new British Pharmacopœia. The name is evidently no guarantee of purity, for a specimen made by a well-known firm was represented by the figure 871, whilst another, sold under an equally well-known name, had to be satisfied with an award of 162, a state of affairs which is hardly satisfactory The same pepsin is often sold under different names, according to the amount of impurity added. I have before me a table showing the exact quantity dissolved by one grain of all the best-known pepsins, but I do not think it would serve any useful purpose to publish it. Better by far that every medical man should make his own observations and form his own opinion. It may be doubted if the Pharmacopœial description of pepsin as "a light yellowish-brown powder" is a happy one, for the most active specimen was a preparation in scales. The pepsin usually supplied to hospitals is, I am sorry to say, of poor quality, In addition to the thirteen solid pepsins, I examined six liquid preparations, wines, essences, etc., and although ten grains were taken instead of one, the results were unsatisfactory, and the only conclusion I could arrive at was that they were not very reliable, although none of them were absolutely inactive. Having used the carica papaya largely in the treatment of various forms of dyspepsia, I determined to try it against the best pepsins, but found that under the conditions already indicated it was decidedly inferior in activity. I examined

in all six specimens of papaw obtained from trustworthy sources, but only two came up to the Pharmacopœia test. The best papain had about half the activity of the best pepsin. I do not say that in alkaline or neutral media the papains are not more active, but simply that, tested against the best pepsins and by the same methods, they do not give equally good results. Even in a neutral solution the best papain was not equal to the best pepsin in an acid solution. A papaw preparation which in a certain time dissolved 420 grains in an acid solution dissolved 476 grains in a one-fourth per cent. carbonate of soda solution and 535 grains in a neutral solution.

No one can doubt that pepsin is a valuable therapeutic agent, and that it is of the greatest possible use in the treatment of many forms of atonic dyspepsia, flatulence, and gastralgia; but to obtain anything like good results it must be given in doses very much larger than those recommended in the British Pharmacopœia. To give only from two to five grains at a time is a palpable absurdity. The reason that such good results are obtained with pepsin in the treatment of infantile diarrhœa is that it is given in proportionately larger doses. To obtain good results in the treatment of dyspepsia two things are essential—first to test your pepsin, and then to give plenty of it.—*Lancet*, Feb. 27, 1886.

Therapeutics of Gonorrhœa.—Awssitidjiski, as a result of the observation of forty cases of gonorrhœa, recommends the following treatment. During from three to four days ninety grains of salicylate of sodium in six fluidounces of infusion of flaxseed are given daily, together with warm sitz-baths. As soon as the cutting sensation on the urethra has disappeared injections of a two per cent. solution of boracic acid are given from four to six times daily for four days. Finally injections of mercuric bichloride, one part in six thousand, are ordered, and continued until the cure is complete.—*Centralbl. f. Chirurgie*, Jan. 30, 1886.

Induced Epistaxis in Headache.—According to Coiffier, in congestive headache nothing secures relief so quickly as induced epistaxis. To produce free nose bleed, proceed as follows: Cut a little piece of mustard paper, dip it in water, roll it up mustard side outward, and introduce it for a few moments into the nostrils. Slight local abrasion will then readily induce the requisite bleeding.—*Canadian Practitioner*, March, 1886.

Precocious Menstruation.—Wallentin records the rare anomaly of a female infant in whom menstruation began in the fifteenth month, and has continued to her seventh year, up to the date of the present paper. The elimination of blood has occurred every four weeks, and endures from three to four days. At the age of four years it weighed over fifty pounds, breasts well developed, mammillæ prominent and pigmented, mons veneris somewhat hairy. At six and one-half years there was apparently mature sexual and physical development. The mental development, however, corresponds to the age of the child.

Wallentin maintains that the bleeding is distinctly menstrual, basing the assertion upon the absence of any pathological cause, and upon a case recorded by Prochownik (*Arch. f. Gynäk.*, Bd. xvii.), in which, at the autopsy of a three year old infant who had menstruated for two years, there was discovered not only marked development of the ovaries, but a fresh corpus luteum.—*Centralbl. f. Gynäk.*, February 20, 1886.

Removal of both Ovaries during Pregnancy.—At the annual meeting of the Obstetrical Society of London, on February 3, 1886, Mr. Knowsley Thornton presented the following unique case. M. W., married, aged twenty-two, in the third month of pregnancy, was known to be large twelve months before marriage. She is now beyond the size of pregnancy, and has a large fluctuant tumor in the abdomen, which is growing fast. Has suffered from several attacks of pain in the abdomen, with rise of temperature, sickness, and faintness. Diagnosis: ovarian tumor complicated by pregnancy. Ovariotomy advised, and performed Feb. 4, 1885. Dermoid tumors of both ovaries removed. Rapid and uninterrupted recovery. Premature delivery at eighth month. Labor uncomplicated. Lochia normal. Fine healthy child, and plenty of milk to nurse it. On examination, uterus found atrophic; patient, while nursing, suffering from flushes, chills, etc., just as others do who have an artificial menopause brought on by operation.—*Lancet*, Feb. 20, 1886.

Mixture for the Anorexia of Pregnancy.—Forwood recommends the use of the following mixture in cases of loss of appetite in pregnant women:

Pulverized calumba root,		
Pulverized sugar root . . .	āā	15 parts.
Senna leaves		4 "
Boiling water		475 "

Infuse. A wineglassful before each meal.—*L'Union Médicale*, Feb. 27, 1886.

Therapeutic Notes.—Dr. Yeo, of King's College Hospital, in his opening lecture in the course of clinical therapeutics, is reported by *The Lancet* as having made the following practical observations:

1. That in order to derive the full beneficial effect from iodide of potassium in cases of aneurism, the drug must be given in twenty or thirty grain doses three times a day.

2. That arsenic, besides acting well in chronic skin affections, is often of service in cases of angina pectoris, asthma, neuralgias (especially the visceral forms), and in some kinds of anæmia.

3. That aconite is much more certain in its action when given to reduce the temperature and other symptoms of local inflammations in children than it is in the case of adults.

4. That the topical application of opium is a much neglected but useful remedy for the relief of local inflammations, especially when these are traumatic.

Powder for use in Pyrosis.—Monin records favorable results from the exhibition of the following powder in cases of heartburn:

Pulverized phosphate of zinc .		10 parts.
Calcined magnesia . . .		3 "
Pulverized vanilla . . .		1 part.—Mix.

A teaspoonful in a wineglassful of water.—*L'Union Médicale*, Feb. 16, 1886.

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SATURDAY, MARCH 20, 1886.

THE DEATH OF DR. FLINT.

BY the death of AUSTIN FLINT, SR., the profession of this country has lost a distinguished representative and a most honored member.

When we hear of the death of a man advanced in life, the shock of the announcement is dulled by the feeling that his work was finished and the inevitable had come, but with Dr. Flint it is far otherwise. We have here the keen sense of the removal of a man in the vigor of his intellectual and bodily powers; of the loss of a veteran, it is true, but of a veteran in full armor, still marching as a leader in the very van of progress. This it is which makes his death untimely and his loss a calamity.

In his ties of birth, education, and work Dr. Flint was singularly fortunate. Born in Massachusetts and educated at Harvard, he enjoyed, as a young man, the best advantages the country afforded, and grew up under influences which fostered in his character the firmness, energy, and determination which he inherited from an old Puritan stock. How much of his professional success in life is to be attributed to good qualities derived from his ancestors is an interesting question, as he is one—perhaps the most notable—of a long list of New England physicians in whose families the practice of the healing art has descended, as a sacred office, from father to son through several generations. Among the circumstances which combined to make Dr. Flint a representative American physician, we must take into account the extent and diversity of his field of labor in the first half of his career. East, West, North, and South may justly lay claim to a share in his professional development, and to the influence upon him of life in Buffalo, Chicago, Louisville, and New Orleans may be attributed in part, at least, his intense devotion to what he deemed the best interests of the profession throughout the country.

It is not our purpose on this occasion to estimate the value of Dr. Flint's work, but we may indicate the two directions in which, as it seems to us, he has influenced the medical thought of his day. No one in this country has contributed so much to our knowledge of the physical signs in pulmonary and cardiac disease, and his labors here will have an abiding interest; and as his early and most important contributions were to these subjects, so the last paper from his pen, in the January number of *The American Journal of the Medical Sciences*, deals with questions which he had made the study of a life. To his teaching during half a century we may attribute the prevalence of more rational ideas upon the nature of disease and the action of medicines. Doubtless it was from his great master, Jacob Bigelow, that he learned the lesson which he illustrated in so many ways in his works on fever and on phthisis, that a knowledge of the natural history of a disease formed the starting-point for its rational therapeutics.

But in a still better way the life which has thus prematurely closed has had an influence widespread, beneficial, and enduring. Not for a moment, in his long career, did Dr. Flint lose sight of the dignity and honor of his high calling. It was his life; in it he may be said to have lived and moved and had his being; in it few have walked more worthily; and in the universal esteem of the profession in this country and abroad, he had a reward dearer to him, doubtless, than the measure of worldly success which fell to his lot.

LORETA'S OPERATION.

IN THE MEDICAL NEWS for April 21, 1883, there appeared the first account of the "digital divulsion of the pylorus," as performed by PROFESSOR PIETRO LORETA, of Bologna, Italy, presented in the English language. A record of the first two operations was read in Bologna before the Academy of Science, by the originator of the method, on February 11th of that year, and the same, in printed form, was sent, with photographs of the two cases, to Dr. Robert P. Harris, of Philadelphia, on March 19, 1883, by Dr. Peruzzi, of Lugo, who now resides in Bologna, and has assisted the Professor in a number of his operations. This monograph, with the illustrations, and a photograph of the operator, may be seen in No. 702, F. B., College of Physicians, Philadelphia, Library.

Finding his method quite successful in overcoming non-malignant stenosis of the pylorus, Prof. Loreta turned his attention to the same condition of the

cardiac orifice, and upon July 9, 1883, not quite ten months after his first essay upon the former, opened the latter by his method of "*rapid divulsion of the cardia*," a long-handled instrument having been contrived for the purpose, because of the impossibility from its location of acting upon this orifice directly by the fingers, as had been done by them with the pylorus.

In a letter from Bologna, dated February 22, 1886, Dr. Harris received from Dr. Peruzzi an authoritative statement of the operations of both varieties, which have been performed by Prof. Loreta during the last three years. This record differs somewhat from that of Ancona, in the *Archives Générales de Médecine*, of Paris, Sept. 1885, pp. 318–334; and of Winslow, in the *American Journal of the Medical Sciences* for April, 1885.

Digital divulsion of the pylorus was first performed, as already stated, on September 14, 1882, at Bologna, since which time its originator has operated eight times, the ninth performance dating November 30, 1885. Of the nine patients, five were cured and four died. Three were lost from the shock of the operation, it having been too great for them to endure in their enfeebled state, produced by imperfect nutrition and repeated attacks of vomiting; and one from hemorrhage.

Rapid instrumental divulsion of the cardia has been performed, in all, by the same operator, seven times, the last on March 21, 1885. Of the seven patients, four were cured, two improved, and one died (from shock). One of the cured was operated upon by both methods, as the pylorus and cardia were both affected with stenosis. A photograph of one of the cases in the possession of Dr. Harris is that of a young girl, apparently of the better class, in whom a long vertical cicatrix shows that her abdomen was opened in the linea alba, and not obliquely on the left side. This is now the line of incision adopted by Loreta in operating upon either orifice of the stomach, as by it he avoids the difficulty and delay occasioned by arterial hemorrhage in the line formerly chosen to the right or left, as accurately described in The Medical News for 1883, vol. xlii. p. 436.

In The News for January 16, 1886, we presented a record of two operations for digital divulsion of the pylorus, performed upon the same day, July 6, 1885, in St. Luke's Hospital, New York, by Dr. Charles McBurney, both of which were unfortunately fatal. One of the women was certainly a fair case for the operation, as her only lesion was a pyloric stenosis, but in the divulsion a laceration occurred which ended fatally by hemorrhage. In his paper Dr. McBurney writes: "In Ancona's article the statement is made that Loreta claims to have performed the operation twenty-two times, and *always* with success." Dr. Ancona in his paper writes: "In a letter addressed to me July 1, 1885, he (Loreta) writes, 'besides these cases that I have cited in my pamphlet (three), I have practised this operation nineteen times, and always with success.'" There has evidently been a misunderstanding here, for case third of Prof. Loreta, operated upon on March 17, 1883, and reported by Dr. Harris in The Medical News for April 21, 1883, died in thirty-seven hours from shock. Dr. Ancona also makes Prof. Loreta responsible for the statement that Drs. Cattoni, of Florence; Giommi, of Cesena; Poggi, of Bolegna; Mazzoni, of Rome; and Jarini, of Brescia, had all performed the operation with success.

We have only to refer again to vol. xlii. of this journal, where Dr. Mario Giommi's case of February 1, 1883, is reported as having died of shock. There were certainly two deaths from the first four operations, as we reported nearly three years ago. Prof. Loreta has, probably, performed *epigastrotomy* twenty-two times, as papers and letters from Bologna show that one operation was performed for the relief of suffering occasioned by fixation of the stomach from adhesions; another for the stretching of bands which contracted the viscus into the form of a transverse colon; and that two others were exploratory, to determine the true character of the existing pyloric lesions, one of which was found to be cancerous, with an extension to the liver, and the other a hyperplasia closing the orifice. In not one of these four cases was cardiac or pyloric divulsion employed.

Writing of the importance of the operations devised by Loreta, Dr. Peruzzi says: "Chronic ulcer of the stomach is very frequent in Italy. Frequent, no, but not very rare, . . . more frequent than in the other countries of Europe." Fatal in its termination, the cure of the stenosis cannot be too highly valued, and, especially, because it is rarely fatal as an operation, except when performed in cases *in extremis* Nearly two years after the first digital divulsion of the pylorus, the subject, Cecconi, remained in good health. Diseases of malnutrition are certainly very common in Italy, where pellagra has its 100,000 victims, and where rachitic and malacosteon deformities are so often encountered. This being the case, we may expect to find dyspepsias, with dilatation of stomach, chronic ulcerations, pyloritis, etc., ending in the conditions which can only be remedied by dilating the stenoses. But for the prevalence of death by starvation, Prof. Loreta would never have attempted such a hazardous step as his operation must have at first appeared to be.

THE MANAGEMENT OF THE PLACENTAL PERIOD.

The conduct of the third stage of labor still invites new observations and excites new controversies. Most practitioners had settled upon the Dublin, or

upon the Credé method, when, in some parts of Germany, at least, warm advocates of the expectant treatment appeared, who attributed to the other methods more or less serious consequences. FELSENREICH, in the January number of the *Wiener Klinik*, gives, as the result of the expectant plan followed in 13,904 cases, a puerperal morbidity of 6.78 per cent., and a puerperal mortality of 0.44 per cent.

In regard to the way in which the placenta is separated from the uterus, he adopts the views of Ahlfeld. The essential factor in this detachment is the reduction of the uterine surface to which the placenta is attached; the separation begins at the central part of the placenta, for there the connection is weaker than at the periphery, and by this central separation a cavity is formed which is filled with blood through aspiration. This retroplacental blood accumulation, by its pressure, causes detachment of the placental periphery, and also partly of the membranes, while this same pressure forces that part of the organ toward the uterine cavity. This process has been observed in a case of Porro operation. The blood which accumulates between the uterus and the placenta is claimed to act also as a tampon, and to prevent further bleeding.

This method of placental detachment is not now described for the first time, as it is many years since Desormeaux and Dubois gave essentially the same explanation, restricting it, however, to those cases in which the placenta was attached to the fundus of the uterus, as at least the usual method of detachment. They state that, as the result of the separation of the central portion of the placenta, there is formed "a lenticular cavity, limited circularly by the adherence of the border of the placenta, a cavity in which a mass of blood constantly accumulating concurs to complete the detachment."

These authors, however, held that if the placenta was attached to the walls of the body of the uterus, the separation might begin at its centre, or at its upper or lower border. Of course, if, as taught by Ahlfeld, Felsenreich, and others, central detachment is the rule, the placenta will, in almost all cases, present at the os uteri by its fœtal surface, and not, as especially insisted upon by Matthews Duncan, by its margin, for it necessarily results that the portion of the placenta forced furthest down in the uterine cavity during detachment, will be that portion of the fœtal surface corresponding with the centre of the uterine surface where the blood accumulation has taken place; so too in this mechanism, a turning out of the membranes from the fœtal surface of the after-birth occurs, so that their delivery is last. Certainly new observations are necessary to disprove or to confirm the carefully conducted experiments of Duncan. His views have been adopted by many obstetricians, especially by Credé and Fehling; on the other hand, they have been doubted by Tarnier, and the observations of Pinard and of Ribemont Dessaignes proved that in seventy-seven cases the placenta presented its fœtal surface sixty-three times.

As to when the detachment of the placenta takes place, Ahlfeld's opinion differs from that generally held, for he states that in presentation of the head the placenta comes to the mouth of the womb when the hips leave it; while Jacquemier, on the other hand, held, as indeed have most obstetricians up to the present, that this separation did not begin until after the expulsion of the fœtus, or, at most, not until the last parts had been expelled from the genital organs.

Ahlfeld states an interesting fact as to the relative amounts of blood lost with the detachment and the expulsion of the placenta, when a woman is lying upon her side or upon her back; this loss being one-fifth greater in the former than in the latter position, a fact which, certainly, is a strong argument for having the third stage of labor accomplished with the patient in the dorsal position.

Of course, accepting the theory of placental separation held by this author, there is necessarily hemorrhage in the placental period of labor. On the other hand, it should be remembered that Duncan has maintained that the absence of hemorrhage is the rule in the normal delivery of the placenta.

Felsenreich describes, in the concluding part of the contribution, his method, which seems very far from being a strictly expectant one after the birth of the child. The uterus stands high at the arch of the ribs; the placenta is not yet expelled, but is already detached, and lies with retroplacental hæmatoma in the vaginal vault and in the under uterine segment. Emptying the bladder, bringing the uterus in the median line, irritation of the fundus, and a gentle pressure during contraction, will often result in the expulsion of the placenta. In other cases in which the placenta is still in the uterus, even half an hour or an hour after the birth of the child, he recommends persevering and suitable irritation, and massage of the uterus, and if failure occurs, then Credé's method.

We think our readers will conclude that such expectant treatment, as followed by Felsenreich, is scarcely deserving of the name.

A SUBLIMATE SOAP.

SEVERAL of our German exchanges contain notices of the successful preparation by Geissler, of Dresden, of a sublimate soap, prepared by admixture with an excess of the fatty acids. It will keep for months and promises to be of special service in the treatment of certain skin affections, but more particularly for purposes of disinfection. In *Fortschritte der Medicin*, No. 4, 1886, Johne, of Dresden, communicates the

results of experiments with it in a composition of 1:100, and he has determined that anthrax filaments containing spores lose their infectious properties in half a minute, and that it destroys with equal rapidity the blue-milk bacillus. The resisting power of the spores of anthrax is notorious, and an agent which is sufficiently active to destroy them in such a short space of time may be guaranteed to kill all forms of germs.

Johne remarks that in such a soap, surgeons and pathologists possess an extraordinary portable, convenient, and active antiseptic which has the great advantage over watery solutions of other disinfectants, that it comes in most intimate contact with the oily skin and acts at the same time as a cleansing and disinfecting agent.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, February 23, 1886.

The President, Charles McBurney, M.D., in the Chair.

EXCISION OF THE PYLORUS FOR CARCINOMA.

Dr. Sands presented to the Society a specimen removed post-mortem from a man upon whom he had operated for cancer of the pylorus. He read the following record, transcribed from the case-book of the Roosevelt Hospital.

Frank Vosberg, aged thirty-one years, from Sweden, married, coachman; admitted March 12, 1885.

The patient has been in the medical division of this hospital for past nine days, and to-day was transferred for treatment. For the past three years he has been suffering from dyspeptic symptoms, from vomiting, and regurgitation of food. Two years ago he began to lose flesh and strength, and has been slowly emaciating since that time. He has had no pain.

On admission, patient greatly emaciated; weight ninety-three pounds; abdomen retracted. Examination by Dr. Delafield. Dilatation of stomach; a hard, movable, nodulated tumor can be felt at the pyloric extremity of the stomach, probably carcinoma. Patient was treated previous to the transfer by washing out the stomach, and by a diet of koumys, alternating with peptonized milk, and enemata of beef peptonoids.

Physical examination: Lungs normal; urine straw colored, alkaline, specific gravity 1.020, no albumen.

Treatment. Ether, operation; Dr. Sands (room 5); carbolized spray in room for seven hours previous to operation. Sponges and napkins thoroughly disinfected, and kept in a carbolic acid solution 1 to 20. When used, they were first thoroughly wrung out in hot water. Abdomen carefully washed and disinfected. Incision made transversely, about three and a half inches long, directly over pyloric extremity of stomach. The dissection was carefully made until the peritoneum was reached.

All hemorrhage was stopped by catgut ligatures (previously kept in alcohol and bichloride solution 1:1000). The peritoneum was nicked, after being raised with a pair of forceps; the opening was then enlarged by slitting it up with a curved bistoury. The pylorus could be plainly seen, and was found to be freely movable, there being no adhesions. The walls of the stomach were hard, and apparently infiltrated with a new growth. The various peritoneal reflections were carefully separated from the walls of the stomach by the finger, and every bleeding vessel secured by a double ligature before division. The intestines showed no tendency to protrude, but were protected by napkins, absorbent gauze, and large flat sponges wrung out in warm water.

After the peritoneum had been separated the pylorus was enclosed between two sets of clamps (Rydygier's); these were made of steel and covered with rubber, and were secured in place by rubber strings. The stomach was then cut through about one and a half inches to the left of the pyloric orifice. The muscular coat was greatly hypertrophied. As the clamps were loosened the viscus was held in place by vulsellum forceps. Profuse bleeding from many points followed the removal of the clamps, but was easily controlled by renewing the pressure. The bleeding points were each secured and ligated with catgut ligatures. The clamps were then removed, the stomach held out of the wound, and protected by warm sponges. The pylorus, with a small portion of duodenum, was then cut off with scissors. About four inches of the viscus were removed. A number of bleeding points in the wound were secured and ligated. Very little, if any, blood escaped into the peritoneal cavity.

The pancreas was seen and appeared healthy. The under surface of the liver and gall-bladder looked healthy. The wound of the stomach left an orifice about three inches in diameter. The edges were brought together for about one and a half or two inches by seven interrupted silk sutures, introduced from within (Maydl's), and by a row of Lembert's sutures externally. The duodenum was brought into apposition with the stomach by twenty-two uniting sutures of silk, reinforced by a second row on the anterior aspect, of six Lembert's sutures, four of silk and two of catgut. The muscular wall of the stomach was so much hypertrophied that great difficulty was experienced in turning in the peritoneal surfaces. Careful examination revealed no weak point. The gut and the portion of the stomach about the wound were carefully wiped off with a warm sponge. The peritoneal cavity was not cleansed. The wound was then brought together by seven silver wire sutures passing through the entire thickness of the abdominal walls, and six superficial sutures of the same material passing through the skin. The wound was dressed with iodoform, and a large flannel bandage was applied.

The operation required almost four hours. During this time the pulse continued good except just before the conclusion, when it became feeble and was lost at the wrist. Twenty-four hypodermatics of whiskey, each half a drachm, were given in a short time, followed by whiskey, two ounces, per rectum. Patient was then removed to bed, covered warmly, hot bottles to sides and feet, and the foot of the bed elevated.

7.30 P. M., the pulse gradually improved and became of fair force, though at times it would become weak. Patient was perfectly quiet, but very weak. Whiskey, half an ounce, per rectum.

8.30 P. M., pulse suddenly became weak and almost disappeared at the wrist. Ten hypodermatics of whiskey, each half a drachm, were given, with marked improvement. Pulse 120; resp. 20; six minims of Magendie.

10 P. M., patient fell asleep soon after receiving the morphine, and remained quiet for one and a half hours. Pulse suddenly became very feeble and respirations shallow. Whiskey, half a drachm hypodermatically and one ounce per rectum.

12 M., temp. (axillary) 98.6°; pulse 124; resp. 18. Awake for a few minutes, but has been sleeping quietly most of the time. He has very little pain, is perfectly conscious, and says stomach feels sore.

13th.—12.25 A.M., whiskey, one ounce per rectum. 2.15 A.M., foot of bed lowered. 3 A. M., patient has been awake for some time, is quiet, and has no pain; complains of feeling too warm. Pulse 120.

6.30 A. M., temp. 98°; resp. 25; pulse 112. Has been sleeping most of the time. Whiskey, one ounce per rectum. 8 A. M., patient awake only about two hours during the night. Looks very weak this morning; face drawn and pinched; eyes deeply sunken. 8.40 A. M., whiskey one-half an ounce; beef peptones per rectum. 10 A. M., temp. 98°; pulse 108; resp. 27. 10.15 A. M., pulse became very weak, resp. shallow. Whiskey, one drachm hypodermatically, with marked effect. 11 A. M., pulse feeble, 104. Whiskey, one ounce per rectum. Patient lies quietly in bed, and is perfectly conscious; has slight abdominal tenderness on pressure.

12.30 P. M., six minims of Magendie. 1 P. M., enema of whiskey, half an ounce. 2 P. M., temp. 98.6°; pulse 104; resp. 24. Slept one hour. 2.30 P. M., two ounces of urine drawn by catheter. 5 P. M., whiskey, one ounce, per rectum. Complains of pain in stomach. 6.30 P. M., temp. 98.8°; pulse 103; resp. 27. 7.20 P. M., enema of four ounces (peptones, three ounces; whiskey, half an ounce). Enema to be repeated *o. c. h.* Patient allowed to hold small pieces of ice in his mouth, but swallowed none of the water. Soon after he received the ice he complained of pain and colic followed by a little nausea.

9 P. M., five minims of Magendie. Ordered peptonized milk, half an ounce, per mouth, *o. i. h.*; ice *o. i. h.*, alternating every half hour. 10.35 P. M., patient very anxious for sleep. Has been awake nearly all day. Had no pain after taking milk.

14th.—1 A. M., whiskey and milk, each half an ounce. 2.30 A. M., pulse 150; resp. 25; whiskey, two drachms, hypodermatically.

Two movements from bowels. Pulse almost imperceptible. 3 A. M., five minims of Magendie. Patient failed to rally; gradually sinking; and, at 4.15 A. M., died. Temp. (rectal) after death, 101.6° F.

Carcinoma of pylorus; resection. Report of Dr. Francis Delafield. The portion of pylorus resected measured two and three-fourths inches in length. Its peritoneal coat was unchanged. The muscular coat was very much thickened, especially over the greater curvature. The connective tissue coat is also very much thickened, especially over the lesser curvature. The new tissue is composed of ordinary basement substance, in which are little rows of small polygonal cells, and many large elastic fibres. The thickening reaches its greatest development one and three-fourths inches above the pylorus.

The muscular layer at the blind ends of the gastric tubules (muscularis mucosæ) is also hypertrophied.

The glandular coat is much thickened, especially over the lesser curvature and posterior wall, where it projects in the form of papillæ. The thickening is due to a growth of round-celled tissue, a hypertrophy of the gastric tubules of irregular form and shape.

The conditions are those of carcinoma of glandular type, associated with an excessive hypertrophy of the adjacent tissues.

Autopsy ten hours after death. The body is much emaciated. The heart is small. The lungs are anæmic. The liver and spleen are small. The colon in its upper half contains feces; the rectum is empty. The small intestine, except the duodenum, is empty. The kidneys are normal. On opening the abdominal cavity the pyloric end of the stomach and the duodenum showed some congestion of their peritoneal coats; but there was no blood, pus, or fibrin. The stomach and duodenum were of ordinary size, and contained a considerable quantity of brownish fluid. The line of resection was completely united, with but a moderate production of cells. Above the line of resection the wall of the stomach is somewhat thickened for about six inches. This thickening is especially marked on the lesser curvature, where a narrow growth projects inward for a length of four inches. This long narrow tumor is composed principally of the hypertrophied muscular coat and thickened mucous membrane. There is the same new growth of glandular tissue here as in the resected portion of the stomach, so that the new growth extends above the line of resection.

Remarks.—Dr. Sands had little to add to the account above given, which he desired to record as an example of unsuccessful operation. He is not prepared to condemn the operation without a fair trial, but he believed that only a few cases would be found in which it would prove to be expedient. In commenting on the case reported, he called attention to the following points:

1. The late period at which the operation was undertaken. This must continue to happen, so long as such cases are regarded as medical, rather than surgical.

2. The length of time required for the operation. This cannot always be avoided, as it must be done with care, and sometimes, as in the present case, under circumstances of unusual difficulty. The difficulty here arose in part from the great thickness and vascularity of the stomach at the line of section, and, in part, from the employment of Rydygier's clamp, which undoubtedly caused delay. In another similar case, I should rely on the fingers of an assistant.

3. Post-mortem examination showed that the cancerous infiltration of the stomach extended beyond the line of section. This must often be unavoidable; and it may be fairly questioned whether, in such cases, in which narrowing of the pyloric orifice is the prominent symptom, Loreta's operation of divulsion of the latter would not be safer, and, therefore, preferable. I believe that it would, and regret that I did not resort to it in the case reported.

DR. MARKOE said that he was present at the operation, and was very much pleased with everything pertaining to its performance, except the action of the clamps, which was very unsatisfactory.

DR. GERSTER remarked that in the light of Dr. Sands's

experience it would seem that Billroth's method of operating without using the clamps—that is, by making an incision through the walls of the stomach gradually, and tying each bleeding vessel as it was cut—was worthy of consideration.

DR. SANDS said that it was the better method, and was the one which was resorted to in the latter part of the operation.

DR. GERSTER asked whether the stomach was found perfectly empty.

DR. SANDS replied that it was; that it had been thoroughly washed out with a salicylic fluid just prior to the operation.

DR. GERSTER said he asked the question because in a recent case in which the stomach was washed out about half an hour before the operation with a borosalicylic solution, while the sutures were being put in the patient vomited a large quantity of brownish liquid which undoubtedly was not in the stomach when the patient was placed upon the table. He regarded this as a question of some importance, because if the stomach contains eight or ten ounces of fluid, serious soiling of the abdominal cavity might be caused. Nothing of this kind was mentioned in Billroth's cases, who does not use ether. Ether produces a large quantity of mucus in the respiratory, and to a certain extent in the alimentary, tract. Dr. Gerster also mentioned that in a case of gastrostomy for cancer of the œsophagus, and in which it was certain the stomach was empty, because the patient was starving to death, and in which ether was administered, a large quantity of fetid glairy mucus rushed out of the stomach when the incision was made. He thought that the use of ether in these cases is not as advantageous as chloroform. He had seen also in this case of exploratory incision that, although the operation lasted for only a short time, not more perhaps than half an hour, and in which the patient was in fair condition and without any stenosis whatever, the pulse became very weak, and if exsection had been performed, the patient would have died of shock, or whatever it might be called.

OVARIAN TUMOR.

DR. L. A. STIMSON presented a portion of an ovarian tumor which weighed fifty-seven pounds, and which he removed a few days ago. The specimen was interesting chiefly with reference to two points: first, the size of the cyst; and, second, the large area of flat adhesion to the abdominal wall.

The patient was twenty years of age, weighed 147 pounds, and was admitted to the Presbyterian Hospital two weeks ago, with an abdominal tumor which she first noticed in March, one year ago. An idea of the size of the tumor at the time of admission was indicated by the fact that she measured around the waist forty-six and a half inches, and that the heart was displaced to such an extent that the apex beat was in the third intercostal space. The tumor occupied the entire abdomen, and expanded the lower ribs. The diagnosis was ovarian cyst, probably multilocular in character, and the operation was performed on Wednesday last (February 17th). The tumor was exposed by an incision four inches in length below the umbilicus, and after the peritoneal cavity had been opened, and some of the cyst contents withdrawn, it was found that the sac was so adherent above, in front, and on the right side, that it became necessary to extend the incision above the umbilicus. It was estimated that the adhesions occupied an area of about a square foot, and they were divided by the use of the thermocautery after partial evacuation of the cyst had been effected by means of the trocar; oozing points were touched with the cautery or tied. The toilet of the peritoneum was made, the omentum evenly spread out over the intestines, and then a rubber drainage tube passed from the lower angle of the wound into Douglas's pouch, and the wound closed with four button-wire sutures, to take the strain, with a continuous catgut suture through the peritoneum, and interrupted silkworm gut sutures in the skin and muscle. The case had progressed without unfavorable symptoms, the drainage tube was removed to-day (22d), and the wound is healing without suppuration. [March 1st. The healing is now complete. The last sutures were removed February 27th, and the wound was then absolutely dry and healed.]

USE OF ATROPINE TO PREVENT SHOCK AFTER OPERATIONS.

There was one point to which Dr. Stimson wished to direct attention. For upward of three years he had been in the habit, in cases which were to undergo grave operations, of employing a small quantity of atropine hypodermatically just before beginning the operation, to diminish shock. He had been led to this use of the drug by knowledge of the fact established by physiologists that it would prevent the inhibitory action upon the heart of efferent pneumogastric currents excited by irritation of important sensory nerves. He had tried it in a number of cases in amounts varying from $\frac{1}{64}$th to $\frac{1}{96}$th of a grain, and he thought that it had directly contributed to the success of the operations. It was difficult to speak with precision on such a point, because of the lack of positive evidence, and he could only say that the patients thus treated had left the table with a better pulse and less collapse or shock, than those who had not been protected by the use of atropine, and he, therefore, commended it to the attention of the Society.

FOREIGN BODY IN ŒSOPHAGUS; DEATH FROM PERFORATION FOLLOWING EFFORTS TO EXTRACT IT.

DR. W. T. BULL presented a specimen with this history:

On November 11th I was called to see a gentleman suffering from chronic mania, who was supposed to have swallowed a foreign body. He has been of unsound mind for two years, but was in fair physical condition. At intervals he had refused to take nourishment, and had been fed of necessity per rectum or with the œsophageal tube. On attempting to pass such a tube the day before I saw him, his physician found it arrested just at the entrance of the œsophagus. On examination with œsophagal bougies and probangs, I found the œsophagus wholly occluded by a foreign body at a point nine inches from the teeth, just below the cricoid cartilage. It was impossible to pass any instrument beyond the body, which was hard and unyielding to the instruments, and gave a "click" almost as sharp as that of a vesical calculus. Œsophagotomy was determined upon for the following day, provided the body could not be extracted by forceps, of which no suitable ones were at hand. The man was nourished

per rectum, and was able to walk about freely. He stated, on close questioning, that he had swallowed at different times stones as large as an inch in diameter, and horse-chestnuts, in order to improve his voice.

The following day (Nov. 12th), before proceeding to œsophagotomy, I thought it prudent to try to extract the body with forceps, of which I had several sorts, as the manipulations were very well tolerated. But I could not succeed in the course of ten minutes in getting any hold on it, nor could I get the finest instrument beyond it. A forceps, such as I show you, called Krohne's forceps, brought up several grape-seeds, and finally dislodged the body, which passed five inches further down the œsophagus, fourteen inches from the teeth. The body could be distinctly felt at this point, but it could not be caught, though the instrument, without any force, seemed to pass by it. There was no blood on or in the blades nor in the mucus spat up. A large stomach-pump tube was made to impinge lightly on the body without dislodging it. About fifteen minutes were passed in these manipulations. After the passage of this instrument the man felt faint, and shortly after complained of pain in the epigastrium. He was put to bed, given whiskey hypodermatically, and soon revived. The pain recurred later, and necessitated the administration of morphine hypodermatically.

The next day (Nov. 13th) the pulse was 136, temperature 101⅘°, and there were great dyspnœa and prostration. The pain in the epigastrium continued. He died November 14th, at 2 P.M. At the autopsy the left pleural cavity contained a mixture of various ingesta in a state of decomposition, and the lung was collapsed. The right had old pleuritic adhesions. Opposite the lower third and fourth inches of the œsophagus there was suppuration in the tissues of the posterior mediastinum, and three inches above the cardiac orifice of the stomach there were two perforations of the œsophagus itself, which were opposite the most prominent part of a horse-chestnut, measuring one and a quarter inches in its two diameters, which was firmly impacted. These perforations were on the left wall, situated more posteriorly, had rather sharp edges, and one was as large as half the top of a lead pencil, the other one-half smaller. The stomach was empty, and the intestine contained no other foreign body. There were abundant and dense old peritoneal adhesions.

To illustrate the success which may follow attempts at extraction, I would like to put on record

TWO SUCCESSFUL CASES OF EXTRACTION OF FALSE TEETH FROM THE ŒSOPHAGUS.

The first of these was a married woman, thirty-five years of age, whom I saw, in 1882, twenty hours after she had swallowed a plate containing two front teeth. She had much pain, and could only swallow water, and that with pain. A probang detected the body arrested just below the cricoid cartilage, and the "coin-catcher" was easily passed beyond it and brought it out on withdrawal.

The second case was a farmer, nineteen years of age, who wore an upper plate with two teeth. He awoke one night with a sensation of choking and pain behind the sternum, and in the morning missed his plate. He was given emetics and vomited freely. The pain continued, and he was able to swallow only fluids. In nine days, while he remained at home, he lost, according to his own statement, twenty-five pounds in weight. No attempts at extraction were made until I saw him, ten days after the accident. He was still well nourished, but excessively nervous and anæmic, and unwilling to try to swallow anything on account of pain. A probang detected the plate just above the cardiac orifice. I then passed a "coin-catcher," caught it, and drew it as far as the cricoid cartilage, where it stuck. On introducing the instrument again, the plate was dislodged and arrested at its first position, from which it was easily drawn as far as the cricoid, where the instrument lost its hold. This happened several times. I then passed one "coin-catcher" beyond the plate, and felt it catch its edge; a second one was passed to a point just below the cricoid sheath, by an assistant. The first instrument with the plate was then withdrawn, and so soon as it let go its hold on the body, the second one was drawn out, and the plate came with it. It measured one and three-eighths by two inches. There was no reaction and the man left for home in forty-eight hours.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, March 2, 1886.

THE VICE-PRESIDENT, LEONARD WEBER, M.D., IN THE CHAIR.

DR. SPITZKA exhibited

THE BRAIN OF A PORPOISE,

demonstrating the absence of the pyramidal tract in this animal, and the enormous size of the auditory nerve, which nearly equalled the lumbar cord of the same animal in transverse section. The comparatively small diameter and shortness of the segments of the lumbar cord, as compared with the dorsal segments, were dwelt upon. The brain weighed a few drachms less than forty-five ounces; the animal (a bottle-nosed dolphin) weighed 236 pounds, and was obtained through Mr. Eugene Blackford.

Dr. Spitza then presented the specimens and history of a

CASE OF NEUROGLIOMATOUS HYPERTROPHY OF THE PONS OBLONGATA TRANSITION.

The facial, pneumogastric, and hypoglossal nuclei were distinctly involved. The following was the condition of the tumor and the involved structures: While the infiltration was diffused over a large area of the oblongata and pons, it was only in a comparatively limited compass that it could be considered as a destructive lesion. It had not advanced uniformly from a given original focus, but had extended in the direction of special tissues which seemed to favor its progress. Thus, compact nerve-strands seemed to oppose resistance, while ganglionic tissue acted as a guide. The consequence was that the raphé, most nerve-roots, and the great strands, such as the ascending root of the fifth pair and the restiform column, were either perfectly free or so slightly involved that it was difficult to determine whether they were affected. The vascular districts, particularly of a capillary character, which abound in the reticular field of the tegmentum, also favored the extension of the growth.

Where the lesion was at its maximum, no trace of the

normal tissues could be discovered. A finely molecular basis substance, crowded with bodies resembling neuroglia nuclei, but mostly of larger size, and others resembling the small variety of ganglionic cells, but without well-defined processes, predominated over the basis substance to such an extent that even in fairly thin sections nothing but these nuclei and granules could be seen. Many of these bodies were surrounded by a halo, resembling the cell capsule hydropsia, described by Hurbich and Forel; others were embedded in a hyaline material, presenting an appearance like that of a cell body, including a nucleus. This stained brown in alum-hæmatoxylin, while the nuclei stained a deep blue. The former were not stained by carmine. But the most remarkable feature was the bloodvessels of the neoplasm; these, distended to their utmost capacity, abounded in at least fourfold the number and size of the opposite side when unaffected. They presented every evidence of rapid growth and enlargement, and many were evidently newly formed, while signs of vascular new-formation were frequent. They were contorted in the most bizarre fashion imaginable. The blood within these vessels was in a condition of stasis; the vascular walls were exceedingly thin, and in many places ectatic. In several places the infiltration had undergone rarefaction, probably owing to softening and absorption of its hyaline products. An irregular spot of this kind was situated immediately caudad of and in the concavity of the genu facialis. Another was in the corresponding situation at the head of the roots of the vagus nerve. A third was in the very centre of the reticular field mesad of the pneumogastric rootlets. A fourth has been described as situated in the interolivary layer. In some sections the neoplasm did not cut well, and did not remain in the section, the cut surface showing the appearance usually presented by spots of malacia that have been hardened. This was the case with a spot in the very centre of a focus of the disease, which accurately corresponded to the middle abducens nerve-roots.

The motor nucleus of the right trigeminus was seriously involved. Sensory nucleus of the same in the exit level slightly involved. Right lower facial nucleus destroyed. Right abducens nucleus scarcely involved. Right vagus glosso-pharyngeal nucleus nearly destroyed in higher levels, free in the lowest. Left vagoglosso-pharyngeal nucleus slightly involved in intermediate levels. Hypoglossal nucleus destroyed on both sides in its upper, on the right side in the middle third. The nuclei of the fasciculi testes cannot be identified anywhere.

Of nerve tracts, the pyramids, the transverse pons fibres, and the cerebellar peduncles with their continuations, appear to be entirely free from disease.

The posterior longitudinal fasciculi are both normal above the abducens nuclei; in that level they show slight infiltration on the right side; in the hypoglossal level the right is intensely involved. The right solitary bundle, also known as the round and trineural bundle, is greatly involved in its proper substance in the exit level of the tenth and eleventh pairs; singularly enough its cephalic termination in the nervus intermedius, is free. The ganglionic substance in which the fascicle is embedded is entirely destroyed in the affected levels, and the destruction extends in the direction of the afferent and efferent fibres.

The nerve rootlets are mostly normal where identifiable. In all but the most intensely affected areas they pierce the lesion without showing any signs of disease. This is notably the case with the abducens nerve; some of the glosso-pharyngeal levels were lost. The abducens and vagus fibres, however, are distinctly less numerous on the right than on the left side. The right facial nerve, the peripheral overhardened portion of which appears normal, is the seat of intense degeneration. The axis-cylinders are destroyed.

The reader thought that in the light of the post-mortem findings, deducing from the intensity of the lesion its age, and correlating it with the observed symptoms, we may infer that the neoplasm originated in the reticular field, which it involved diffusely at the start, including in its area the emerging root of the right abducens and the facial nucleus; that it extended from the latter backward into the deep nucleus of the mixed system, and progressing toward the raphé and ventricular floor; in the transverse direction extended to the trigeminal nuclei, cephalad, and to the hypoglossal nuclei and posterior longitudinal fasciculi afterward; its latest invasion being the interolivary.

The gastric vagus nerve functions were the first to be involved in the thirteen months' illness; nausea and vomiting inaugurating the illness, and culminating in attacks of vertigo during the first four months of her illness; drowsiness, aggravated when the stomach was full, was a prominent symptom, and bulimia preceded death. The cardiac functions were involved seven months after the disorder first manifested itself, and became aggravated *sub finem* as well as the dyspnœa and precordial fears which are dependent on disturbances of the same nerve. The motor functions of the lateral set of nerves were also considerably involved. Difficulty of deglutition was experienced after four months in continually increasing severity so that swallowing finally became impossible. The paralysis of the palate was extreme for the last six months, and had been noticed in less degree since the fifth month of her illness.

With the above symptoms the destructive involvement of the right vagus nucleus, the invasion of the left nucleus, and the destruction of a part of the vagus roots, are in accord. The considerable involvement of the deep or motor nucleus in its upper levels, which I have proposed to term the nucleus of the pharyngeal muscles, is equally in harmony with the progress of their functional insufficiency.

Symptoms of irritation in several instances preceded the evidences of nuclear paralysis, or existed alone. Thus, spasms of the muscles of mastication preceded a slight evanescent paresis of these muscles. The motor trigeminus nucleus was involved, but not destructively so. The total paralysis of the facial nerve was preceded by facial spasm, and the last step in the extinction of the facial nerve functions, the paralysis of the uvula, was preceded by what can be interpreted in no other way than a contracture of the subsequently paralyzed half. It is an interesting fact that the stapedius paralysis which probably accounts for the tinnitus, went parallel with the paralysis of the external branches of the facial nerve, and not with the pharyngeal rami.

The subjective hemi-numbness, which at no time involved the left side of the face, was a crossed symptom, in harmony with all similar observations. It began four

and a half months after invasion, and as it increased became associated with hemi-paræsthesia, hemi-paralysis of the pressure sense, and ultimately with hemi-ataxia due to hemi-paralysis of the muscular sense. As the focus of the lesion lay in the mesal half of the reticular field, we may attribute the maximal disturbance of the weight and pressure sense to it, and the less disturbances, due to irritative pressure of nerve tracts, to the infiltrated but undestroyed fields near the ascending fifth root. The terminal loss of muscular sense is to be attributed to the terminal lesion of the interolivary layer.

The paper concluded with the following proposition: sensory disturbance of the extremities, when existing on the side opposite to a facial nerve paralysis, if due to a single local focus of disease, is as pathognomonic of a unilateral pons lesion as alternate paralysis of motion is. The difference between the two is merely one of altitude; in the former case, the lesion is in the tegmental part of the pons; in the latter case, in the transverse floor fibre mass of the pons, which, as is well known, includes the sagittal bundles of the pyramidal tract.

Paralysis of associated eye movements of the side of the lesion are peculiar to affections of the brain axis; they are, when thus situated, always due to disease of the tegmental part of the pons, and to that part of it which lies inside of the emerging root series of the fifth and seventh pairs. The interolivary layer and the other part of the lemniscus are to be excluded from this area, the focus of which appears to be near or in the posterior longitudinal fasciculus, as well as in the neighboring reticular area and raphé, and rather cephalad of the abducens nucleus than in the same level.

That form of associated eye movement paralysis, which manifests itself in inability to move the eye globes in one lateral direction in the horizontal plane, can be produced by lesion situated in and cephalad to the level of the abducens nucleus. It is for this reason that absolute paralysis of the external rectus muscle of that eye which is on the side of the lesion, is commonly combined with the associated movement disturbance, as in the case presented.

Nystagmic oscillation in the plane of the disturbed movement may occur in such a case, as is shown by the one to-night related. I believe that this is the first observation of the kind in which the cerebellum and transverse or cerebellar pons fibres were intact. This was not the case with Graux's patient, whose cerebellum was the primary seat of the tumor.

DR. M. A. STARR had observed in the specimens and diagrams presented an apparent implication of the acoustic nerve.

DR. SPIZTKA said this nerve was entirely unaffected, and explained its seeming implication.

DR. C. L. DANA made a brief preliminary report of a case which he thought would be interesting in connection with lesions in this region. The man, about forty-five years old, was brought into his ward with a history of having been ill a very short time. He was strong and robust-looking. He was found to have static ataxia; was unable to walk or stand. There was no motor paralysis in any of the extremities. There was anæsthesia of the temperature sense, of the tactile sense, and of the pain sense on the right side from the shoulder down, involving the right arm, right leg, and right side of the trunk; the right half of the face was not involved. There was no anæsthesia of touch, temperature or pain sense on the left side, but in the left hand and arm there was the most marked ataxia which the speaker had ever seen. The arm showed no tremor or paresis, but any attempt to place it in a particular position would cause it to fly about in a most senseless manner. There were some cerebral symptoms, but the intellect was clear. In a few days there developed signs of vagus trouble; there was some difficulty in swallowing, partial paralysis of the vocal cords, inability to speak loud. The patient died after about three days from the entrance of food into the respiratory tract.

At the post-mortem examination there were found a small aneurism of the basilar artery, a recent thrombus of both vertebral arteries; near the upper aspect of the right half of the floor of the fourth ventricle was a small spot of softening. The latter lesion, it seemed to him, would account for the ataxia of the left arm. He had not yet prepared the brain, but had photographed it.

DR. A. D. ROCKWELL said the difficulty in locating cerebral lesions is greater than one's reading might lead him to suppose. Out of a large number of cases of hemiplegia which he had seen, there was only one in which the symptoms were so distinct that he felt quite sure as to the location of the lesion. This occurred about a year ago, in a man whom he saw with Dr. A. R. Garman. The patient had a profound apoplectic stroke; deep coma supervened, with unconsciousness for some time; there was hemiplegia upon the right side; upon the left side there was facial paralysis. There was conjugate deviation of the eyes. The symptoms were so distinct that he ventured to locate the lesion in the lower lateral portion of the pons. The patient died within a few days, but an autopsy was not obtained.

CORRESPONDENCE.

MEDICINE IN VIENNA.

The clinics—Morbus Viennenés—Antiseptic precautions in the maternity wards.

VIENNA, February 24, 1886.

As Vienna has lately assumed such prominence as a clinical centre and resort for the travelling physician, some facts explaining this preëminence may be of interest.

The "Common Hospital" was founded by the Emperor Joseph II., and opened in 1784. Its buildings originally comprised both hospital and poorhouse; these structures were adapted for their present use, and in 1869 united under one management. They are built in nine communicating courts, in a common enclosure having a total capacity of 3200 beds. The Vienna Clinic, or Hospital Medical School, began with 12 beds. It now has 700 at its disposal, which are included in the 3200. In addition to the 20 subdivisions of the hospital proper and 14 clinical divisions or wards, there are a number of pay wards of varying price, while a small fee is taken from all patients, foreigners paying more than Viennese.

The buildings are of stone, with stone stairs, thick walls, and wooden floors. In neatness and general

cleanliness, more than the average is attained; in equipment of baths, ventilating shafts, and accessory rooms, the wards are comfortably supplied; food, clothing, and bedding are good; the uniformed trained nurse is unknown; and in some wards the help is insufficient. A noted exception are the midwives, who have a special course of instruction from Prof. Gustav Braun, and a training and experience a physician might envy. The hospital staff is composed of a minister of sanitation, nine physicians of the first class, thirty of the second class, and twenty-two clinical assistants, in addition to the Pathological Institute, with its chief and assistants. The various supply departments have each a chief, responsible to the Imperial Government. The routine hospital work is done by internes. Each clinical subdivision has its laboratory for the use of the clinical assistant, while each ward has its laboratory, with microscope for internes' use. There is also a well-equipped general reading-room for physicians, with library and a "Silentium."

In addition to the lectures of the regular course are the clinics given by the professors, and of equal interest to the physician are the special courses given by professors and assistants. In addition to the hospital just described, is the Polyclinic in a separate building, conveniently situated; its instructors are, many of them, hospital professors.

It will be observed that a vast amount of material of different kinds is brought under one management, almost in one enclosure, and thoroughly utilized. London, Paris, Berlin, Heidelberg, Prague, Munich, and other cities offer opportunities either widely separated or limited to one or two subjects; by one who can spend the time and money to travel, much can be observed in many places, but in no one place such an aggregate as in Vienna. Such attractions and the presence of many foreigners have made living expensive, and have surrounded a residence here for study with many of the unpleasant features of a medical resort.

In the medical wards one hears frequently the "Morbus Viennenés" mentioned in the presence of its subjects. The name is easily explained when one learns that thirty or forty per cent. of all deaths are from this disease, tuberculosis, and so well known and commonly feared among hospital patients is this disease that it has received from clinical lecturers this mask. Its contagion is not doubted, and dried sputum generally serves as the means. Patients entering the hospital with other diseases, and having catarrh of the air-passages, are removed from the proximity of the tuberculous as soon as possible, as it is observed that such patients almost invariably become tuberculous. Primary tubercle of the lungs and genitalia occurs constantly; like syphilis, it may affect any organ of the body secondarily; septic processes become tuberculous, and syphilis as manifested in the larynx not rarely terminates in tubercle. The bacillus is found in urine, blood and sputum from lungs undergoing necrosis. Treatment is palliative only, no specific is known. Sputum is disinfected with five per cent. carbolic acid, it is thought hardly effectually.

The obstetric wards of the hospital have a capacity of 500 beds, divided between the famous Carl Braun, Ritter von Fernwald, and Professor Spaltt.

In the wards of the latter the hands of the physicians are cleansed with sapo-viridis, and disinfected with corrosive sublimate, 1 to 1000. Carbolic acid and iodoform are used commonly about the patients. Douches are given only when a septic process in the uterus or vagina occurs. No sponges or cloths are applied, the parts are cleansed by a stream of carbolized water and by the hand; the lochia are received upon draw sheets, which are renewed frequently. After an intrauterine douche, a suppository of five centigrammes of iodoform is placed within the cervix; vaginal ulcers are touched with tincture of iodine and iodoform insufflated upon them. Diagnosis by palpation is carefully cultivated, vaginal examinations are as infrequent as possible. Forceps are used much less often than in America; the head is not compressed; difficult labors are generally terminated by nature's efforts, or by version, which is always performed when, in the practice of many others, the high application of the forceps would be made. Normal deliveries are made while the patient lies upon the left side, this posture being assumed when the head distends the valve. The head is controlled by the left hand of the accoucheur, passed over the symphysis from above, and between the patient's thighs, the operator facing the foot of the bed. The right hand supports the perineum, which is kept constantly moist with carbolized water. Lacerations of the perineum are infrequent: they are closed by the *serre-fine* when slight, by silk when severe, with the immediate operation when possible.

As prophylaxis against conjunctivitis, one application of a two per cent. solution of nitrate of silver is made to the eyes of each newborn child. Antipyrin is commonly used in gramme doses to reduce temperature, when the elevation is not excessive. Ice-bags and ice-cold compresses are used in inflammations.

The report of the last quarter shows 655 births, with a mortality of five mothers, two of whom died of eclampsia, and three from sepsis.

OBITUARY.

Austin Flint, M.D., LL.D.

The profession will learn with profound sorrow of the sudden death, on Saturday last, of Dr. Austin Flint. This sad event occurred at his residence in New York as the result of cerebral hemorrhage.

Dr. Flint had been in his accustomed health, and had attended a meeting of the Faculty of Bellevue Hospital Medical College on Friday evening. Upon returning home, he retired to bed, apparently as well as usual. Toward midnight he complained of severe pain in his head. The symptoms of cerebral hemorrhage rapidly developed, and he soon became unconscious. Drs. Austin Flint, Jr., and E. G. Janeway were at once summoned, and on Saturday morning Drs. Isaac E. Taylor and W. T. Lusk were added to the consultation. All remedial measures, however, proved unavailing. Dr. Flint's vital powers slowly ebbed, consciousness did not return, and at 2 P. M. of that day he died.

Dr. Flint was born at Petersham, Mass., on October 12, 1812, of a lineage honorable in medicine. His great-grandfather, Dr. Edward Flint, practised at Shrewsbury, Mass.; his grandfather, after whom he was named, was a private and afterward a surgeon in the Revolution-

ary Army, and died at Leicester, Mass., in 1850, at an advanced age; and his father, Dr. Joseph H. Flint, was a distinguished surgeon, residing at Northampton, Mass.

After pursuing his collegiate studies at Amherst and Cambridge, Dr. Austin Flint began his medical studies at Harvard, and received his degree from that school in 1833. After practising for three years at Boston and at Northampton he settled in Buffalo, and by his numerous and valuable contributions to medical literature he rapidly rose into professional prominence. In 1844 he was appointed to the Chair of the Institutes and Practice of Medicine in Rush Medical College, Chicago; but he held the position for only one year. In 1846 he founded the *Buffalo Medical Journal*, and during the ten years of his editorship it was conducted with marked ability and success. In 1847, in conjunction with Profs. James P. White and Frank H. Hamilton, then of Buffalo, he founded the Buffalo Medical College, and he filled the Chair of Medicine in its faculty until 1852, when he accepted the Chair of Theory and Practice in the University of Louisville. In 1856 he returned to Buffalo and again became connected with the Buffalo school. The winters of 1858 to 1861 were passed in New Orleans, Dr. Flint having accepted the Chair of Clinical Medicine in the New Orleans School of Medicine.

In 1859 Dr. Flint removed his residence from Buffalo to New York City, and shortly afterward he was appointed to the Chair of Pathology and Practical Medicine in the Long Island College Hospital, and this position he held until 1868. In 1861 he was appointed to the Chair of Medicine upon the organization of the Bellevue School, as well as Visiting Physician to Bellevue Hospital. In 1872 he was elected President of the New York Academy of Medicine, and in 1883–84 President of the American Medical Association.

Dr. Flint's contributions to medical literature were numerous and valuable. In 1852 he published his "Clinical Reports on Continued Fever," and in the same year the American Medical Association awarded to him a prize for his essay "On Variations of Pitch in Percussion and Respiratory Sounds, and their Application to Physical Diagnosis." In the following year he wrote his clinical reports on dysentery and on chronic pleurisy. All of these papers were translated into French, and reprinted at Paris in 1854. In 1856 he published his "Physical Exploration of the Chest and the Diagnosis of Diseases Affecting the Respiratory Organs," which has passed through two editions. In 1859 his "Practical Treatise on the Diagnosis, Pathology, and Treatment of Diseases of the Heart" was issued, and in 1870 a second edition appeared.

The work, however, which added most to his reputation as a medical author was his "Treatise on the Principles and Practice of Medicine," which appeared in 1866, and which has passed through five editions. It at once took a high position, and become a favorite text-book in all the medical schools of the United States. In addition, Dr. Flint has also written a work on "Clinical Medicine," a volume on "Phthisis," essays on "Conservative Medicine and Kindred Topics," and a "Manual of Auscultation and Percussion." He contributed the articles on "Pulmonary Phthisis," and on "Neuroses of the Heart," to the "System of Practical Medicine by American Authors." In addition, he has been a voluminous contributor to periodical literature, and the pages of *The American Journal of the Medical Sciences*, and of THE MEDICAL NEWS, were frequently enriched by the labors of his pen. The last elaborate article which he published was on "The Mitral Cardiac Murmurs," and appeared in the January number of *The American Journal of the Medical Sciences*.

Dr. Flint's life was characterized by unwearied activity and useful labor in his profession. As an author, teacher, and practitioner, he was alike eminent. As a friend, counsellor, and colaborer, he was universally beloved and respected. He possessed a fine presence and amiable bearing, and his kindly face and benevolent smile will remain indelibly impressed upon the memory of all who knew him.

Of the loss which the profession has just sustained, it has been well said, "His death leaves a great gap in the ranks of the profession; but those who knew him only as a physician, knew him very imperfectly indeed. To a mind of singular breadth and wisdom, accustomed to rest its judgments upon an enormous range of experience and of knowledge, he united in his professional career the warmest sympathies and the most generous appreciation for everything that was good and beautiful. His heart was as large as his intellect was comprehensive, and the gracious gentleness and dignity of his nature adorned and rounded out a character of exceeding completeness and loveliness. We have never known a better, nobler, or a more useful man, and we bid him the last farewell with the feeling that the world is more barren and life less fruitful now that he is gone."

His widow, and his son Dr. Austin Flint, Jr., survive him.

At the Commencement of the Bellevue Hospital Medical College, held on Monday evening, Professor John C. Dalton paid the following graceful tribute to Dr. Flint's memory. He said:

"Gentlemen of the Faculty and of the Medical Class: I am sure there is but one thought in the minds of all who are here in this room this evening. A familiar and venerated presence no longer meets your eyes from its accustomed place. A voice to which you have listened, always with delight and profit, for so many years, is suddenly quiet on this returning anniversary. And yet, I doubt whether our departed friend and counsellor ever wielded over his colleagues or his class such an overwhelming influence as he does at this moment.

"He speaks to you to-night, not with the imperfect utterance of an occasional discourse or a momentary topic, but with the complete and unmistakable language of a lifetime. He stands before you now in his entire character, ennobled by the record of his qualities and deeds, as the acknowledged representative of all that is best in the study, the teaching, and the practice of medical science and art. It was the universal verdict, from which I have never heard a dissenting voice, that among all the eminent men of the profession in this wide country, his was the one name which would be inevitably selected as the first. His single-minded devotion, untiring industry, and indomitable strength of purpose raised him long ago to the position which he held to the last day of his life. And now, after conducting your studies through the session just closed, he has graduated before you, he has taken his final and highest degree, conferred by the Power that is Supreme

over us all; and the parchment of his biography now bears the stamp of Emeritus.

"For you, gentlemen of the medical class, I am sure that Dr. Flint's teachings are far from being ended. I can wish you nothing better than that you carry them with you throughout the future, and that you never cease to remember his instructions and to emulate his life."

At a meeting of the Faculty of the Bellevue Hospital Medical College held March 15, 1886, on motion it was resolved:

That this Faculty keenly sympathizes with the wife, son, and family of our lamented *confrère*, Professor Austin Flint, in their irreparable loss of a tenderly devoted husband, father, and counsellor:

Yet that in their grief they will find consolation in that they can ever cherish the memory of his spotless life, his greatness and his goodness:

That the son, grandson, and great-grandson of eminent physicians and surgeons, entrusted by nature with medical skill and sagacity, so nobly fulfilled his mission;

That his powers of thought and action were preserved in their fulness of vigor to the close of his intellectual and benevolent career:

That his prayer was granted in being spared from lingering illness:

That as he had mitigated the sufferings of others he himself was saved from suffering:

That after a day and evening of arduous medical duties he retired to his painless couch of death—

"God's finger touched him and he slept."

Resolved, That this Faculty has been deprived in this dispensation of Providence of one of the most illustrious founders of this College, whose professors felt honored by having their names enrolled with his:

One through whose instrumentality other medical colleges have been established in our country.

One whose pupils fill chairs in our Faculty, while others hold distinguished positions in similar institutions of medical instruction;

One whose self-sacrificing and gratuitous services have been cheerfully rendered to the sufferers in Bellevue Hospital and other hospitals in our city and country for the last half century.

Resolved, That our city and the world has lost in his death one whose noble presence and tender sympathies in the sick-room cheered the heart and secured the confidence of the afflicted;

Whose remarkable record is justly the pride of any profession in any land;

Whose gifts and labors were recognized at home and abroad;

Who was honored with positions of distinction in America and Europe rarely won;

From whose eloquent lips thousands of students in many colleges have been taught the science of medicine, and by whose graphic pen tens of thousands have gained medical knowledge, and whose numerous and valued works translated into many tongues, will continue as fountains of instruction to future generations.

Resolved, That while our heads bow in grief at his sudden death, our hearts rise in gratitude to God for his prolonged life of widely extended usefulness.

Resolved, That a copy of these resolutions be engrossed and transmitted to his family, and that they be given for publication to the medical and secular journals of this city.

At a special meeting of the Executive Committee of the New York County Medical Association, the following was unanimously adopted:

Whereas, it has pleased God to remove from our Association our beloved and highly honored friend, Professor Austin Flint, M.D., LL.D., one of our founders, and an ever willing co-worker: We desire to record the great appreciation of our loss.

Professor Flint, from early manhood, has ever been an indefatigable laborer in the field of Medical Science, and for half a century has been one of the most accomplished teachers and writers in the profession.

His varied experience, extending over different portions of our country, enabled him, on his settling in New York City, at once to take the foremost place in the profession. As a consultant, he was without a peer; his calm judgment, urbane manners, and strict conscientiousness made his presence ever welcome to his brethren. As a gentleman, he will be held in grateful remembrance by all with whom he came in contact; his charities were proverbial.

His death will be the cause of universal sorrow, especially occurring at a time when his deliberate counsels are most needed. We can never forget that genial countenance, those cheerful words, and that buoyant disposition, which, amid the greatest of sorrows, always pointed out the ray of light affording hope.

NEWS ITEMS.

Commencement of the Bellevue Hospital Medical College.—The twenty-fifth annual commencement of the Bellevue Hospital Medical College was held last Monday evening in the Carnegie Laboratory in East Twenty-sixth Street. The medical degree was conferred upon one hundred and thirty-nine candidates.

Owing to the death of Dr. Austin Flint, who was a member of the faculty, the dinner given by the faculty each year to the graduating class was dispensed with, and the only ceremony, aside from the conferring of the degrees, was the eulogy upon Dr. Flint, pronounced by Professor John C. Dalton, of the College of Physicians and Surgeons. The room was appropriately draped in mourning, and a portrait of the dead professor hung over the stage. After conferring the degree of M.D. upon the graduates, Dr. Isaac E. Taylor, President of the Faculty, introduced Professor Dalton, whose remarks upon Dr. Flint appear in another column.

The Fourth Annual Commencement of the Hospital Medical College of Evansville, Ind., was held March 4, 1886. The degree of M.D. was conferred on four candidates.

Woman's Medical College.—The Thirty-fourth Annual Commencement of the Woman's Medical College of Pennsylvania was held in the Academy of Music on the eleventh of March. There were thirty-three graduates.

Howard University.—The commencement exercises of the Medical Department of the Howard University of Washington were held on March tenth. Twenty physicians and three dentists were graduated.

Massachusetts General Hospital.—A. T. Cabot, M.D., and M. H. Richardson, M.D., have been appointed Visiting Surgeons to the Massachusetts General Hospital.

The Fifth Course of the Cartwright Lectures of the Alumni Association of the College of Physicians and Surgeons of New York will be delivered by William Osler, M.D., Professor of Clinical Medicine at the University of Pennsylvania (Gulstonian Lecturer, London, 1885), at the hall of the Young Men's Christian Association, corner of Twenty-third Street and Fourth Avenue, at 8 P.M., as follows: The general subject is entitled "Certain Problems in the Physiology of the Blood," and is to be presented as follows:

Tuesday, March 23d: The so-called Third Corpuscle; the Blood-plate of Bizzozero; the Hæmatoblast of Hayem.

Saturday, March 27th: Degeneration and Regeneration of the Corpuscles.

Tuesday, March 30th: The Relation of the Corpuscles to the Process of Coagulation.

Railroad Fares to the St. Louis Meeting of the American Medical Association.—The rates given to the delegates to the American Medical Association meeting, May 4th, in St. Louis, have been fixed by the different railroad committees of the country, at one and one-third fares for the round trip. Delegates must pay full fare coming, and will receive on application, from the agent at the starting-point, a certificate, which, when signed by the Chairman of the Local Committee of Arrangements, will entitle them to the reduced return rate.

No reduced return ticket will be issued unless the purchaser can show a certificate issued by the agent from whom he purchased the going ticket, and signed by the Chairman of the Committee of Arrangements.

An International Congress of Hydrology and Climatology, founded by the Society of Letters, Arts, and Sciences of Biarritz (*Biarritz-Association*), will be held at Biarritz from the 1st to the 8th of October, 1886, under the distinguished presidency of the Minister of Commerce, with the help of the Medical Hydrological Society of Paris, and the Meteorological Society of France. The aim of this Congress is to bring together in a country rich in thermal and sanitary stations, the learned men of all countries, who would study in common the questions bearing on hydrology and climatology. All societies and scientific associations, all learned men in France and abroad, are invited to take part in this meeting. At the close of the Congress, excursions will be made to the different thermal and sanitary stations in the Pyrennean district. A complete programme of the excursions, and the time which they will take, will be published later on.

Inquiries should be addressed to the Secretary-General, Dr. F. Garrigou, Toulouse.

Medal Awarded to Prof. Helmholtz.—On the occasion of the tercentenary festival of the University of Heidelberg, a large gold medal was founded for contributions to the scientific knowledge of the human eye. It has been awarded to Professor Helmholtz, of Berlin, for his discovery of the ophthalmoscope.

NOTES AND QUERIES.

FURTHER INFORMATION WANTED.

I am engaged in the preparation of a "Compendium of the Surgical History of the War of the Rebellion," designed as a hand book for military surgeons, and desire to consider at some length "injuries of the bloodvessels," the remote effects of gunshot wounds in general, and the "ultimate results" as regards the functional utility of the limbs treated by conservation and excision in particular.

Inasmuch as many of the survivors have, doubtless, come under professional observation at this late date, it is hoped that the observers will render a service to military surgery, and to me personally, by communicating unpublished data, which will be gratefully acknowledged.

Respectfully,
George M. Kober,
Acting Assistant Surgeon, U. S. A.

Fort Bidwell, Cal.,
February 14, 1886.

The following case has puzzled me greatly, and I would thankfully receive answers to subjoined questions: W. F., æt. twenty-nine, had several spasms when teething; between his third and fourteenth years he had no convulsions; looking back after first convulsion at fifteen, thought he had before first convulsion, in daytime, "dreamy spells," without unconsciousness, at time of occurrence explained by parents as stomachal vertigo before injury to be described, but afterward thought by family physician to be attacks of *petit mal*. At fifteen he was stabbed with a small knife on right side of lowest lumbar spine; stab nearly vertical, at edge of spine, 1″ to 2″ deep; pus pocketed; duration of open wound three weeks. About six hours after stab had severe nervous chill, and next morning an enlarged gland in groin (non-specific). First epileptic convulsion about two or three months after wound, taking place in bed, at night. Began use of bromides at once; used almost continuously since until 1882; does not think he received much benefit in controlling convulsions; rather damage to mental force, which improved after ceasing use of the drug. Has had a few (three) attacks in daytime, generally at night, once a month. About 1884 first bit tongue, and urinated during convulsion. Married 1882; has one child, which has no convulsions. Now taking bromides (Brown-Séquard's mixture) again. No hereditary explanation of attacks.

Queries: 1. Are convulsions caused by stab wounding nerves, cord, or meninges?

2. Probability of transmission to children?

3. Probability of benefit from surgical operation?

Subscriber.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 9 TO MARCH 15, 1886.

Robertson, R. L., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month (Fort Ringgold, Texas). *S. O. 29, Department of Texas.*

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING MARCH 10, 1886.

Benson, J. A., *Passed Assistant Surgeon.*—Resignation accepted, to take effect April 6, 1886, and leave of absence granted until that time. March 10, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING MARCH 13, 1886.

Woods, George W., *Surgeon.*—Ordered to Navy Yard, Mare Island, to relieve W. K. Scofield, April 1.

Scofield, W. K., *Surgeon.*—Detached from Navy Yard, Mare Island, and wait orders.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLVIII. SATURDAY, MARCH 27, 1886. No. 13.

ORIGINAL LECTURES.

MEDICAL ETHICS.

A Lecture delivered, by invitation, at the Woman's Medical College of Pennsylvania, February 3, 1886.

BY HENRY HARTSHORNE, M.D., LL.D.,

(Reported by Laure Hulme.)

TEN years ago, there was but one opinion amongst physicians in this country in regard to medical ethics. Only within two or three years has a considerable discussion been started anywhere on the subject. Frankly, I may say that I believe not only in medical ethics but also in a definite code, in which required principles are clearly stated, so that they may be understood and applied by all.

But some may, at once, ask the broad question, What is the need of ethics at all? Will not the conscience of every man and woman suffice to show what is just and proper? However this may be, leading minds in all ages and countries, outside of Christendom as well as within it, have busied themselves with the subject; from Moses, Confucius, Aristotle, and Cicero, down to Herbert Spencer. We owe to Christianity the most compact and summary ethical precept, foreshadowed by Confucius on its negative side, the Golden Rule: Do unto others as you would that they should do to you. Again, it may be said, Why make a specialty of *medical* ethics? Simply because there are relations belonging to the medical profession peculiar to itself. There might as well be, also, legal ethics, and commercial ethics. If there are none such definitely made out, so much the less the advantages to law and commerce; so much the better off is our profession. Even war, which many believe to be the sum of all evils, has its code of international regulations.

Fully, then, do I believe in the Code; this Code, which I now have in my hand, which originated in Philadelphia about half a century ago; being based on the "Medical Ethics" of Dr. Thomas Percival, of Manchester, England, and which was published by him in 1803. It was adopted by the American Medical Association in 1847, and thus became the recognized code of the medical profession in the United States. I have no idolatry about it at all; but, on reading it again and again, in the light of observation and experience, I believe it to contain sound principles, so well expressed that it can scarcely be improved upon to-day.

1. Remarking upon those principles, I must begin with a glance at the responsibility of the student of medicine. You are bound, in view of the work before you, as so soon to become members of the profession, to be in earnest about it now; to neglect nothing; to be thorough in all parts of your preparation. Opportunities are now before and around you, clinical, didactic, and demonstrative, such as, if not used, you may never, elsewhere and hereafter, be able to make up; and then they will be sadly missed all through your lives. Not that it is well so to toil and strive as to endanger health; that would be to throw away the very instrument of your service—your physical and mental energy and capacities. But, by taking *time* for your preparation, in a four or five years' course, all may be done to make you really ready for the critical and arduous duties of the physician, surgeon, and obstetrician.

2. We speak next of the ethical relations between physicians and their patients. Whenever a doctor is called to attend a case, a charge is undertaken which may, in any instance, involve the issues of life and death. I remember a hospital case of amputation of the thigh, which was made necessary by the sequences of the bite of a mosquito. Erysipelas may add danger to the slightest of external injuries; and blood-poisoning, or some other momentous complication, may attend any ordinary medical affection.

No case, and no patient, must be, for an hour, neglected; not the pauper in his hovel any more than a queen, a president of the United States, an Astor or a Vanderbilt. All necessary visits should be paid to the one as certainly as to the other. Unnecessary visits are sometimes specially desired by those who are willing to pay for them; these should then, of course, be willingly made.

Is it the duty of a physician to take charge of every case to which he may be called? If no other practitioner is within reach, it is so. Should another be obtainable, it is at his option to attend or decline, from pressure of other calls, weariness, or even disinclination. This last, however, ought usually to give way when a patient or family has a particular and urgent preference for the physician applied to. Confidence in a medical attendant is always an element of great comfort; sometimes, even, of safety.

To do the very best we can for every patient entrusted to our care; that is the sum of obligation on the part of the practitioner. In law, a reasonable and usual amount of professional knowledge and skill is the sufficient requirement; but in law as well as in ethics neglect is always culpable. Does the same obligation equally apply, it is asked, to hospital patients? Certainly. Such patients owe some return for the great advantages they receive without cost to themselves. It is right that they should afford the means of clinical observation and instruction. It is proper that the facility of controlling and watching treatment in hospital wards should be utilized, in the careful trial of new remedies; but never without every precaution to secure safety, and never without a reasonable probability of benefit to the patient. No physician or surgeon has a right to institute a treatment upon a charity patient which he would not be willing, in similar circumstances, to have tried upon himself. And, for a physician to perform upon a charity patient a merely physiological experiment, which he would not venture to have performed upon himself, is without justification.

This element of *humanity* toward all ennobles the vocation of the practitioner; for true humanity

"The lowliest duties on herself doth lay."

What weary hours, what menial unwelcome services, are thus not only made tolerable, but are cheerfully accepted!

Confidential intercourse is the necessary privilege of physicians with their patients. Its secrecy should be sacred. The law in some places does, and everywhere it should, sustain this secrecy as inviolable. Exceptionally, to preserve life threatened by an intended crime, would be (if such should ever happen) a right occasion for a physician to use knowledge confidentially obtained from a patient. Or, if the health and happiness of another should be about to be endangered by a patient affected by a contagious disease, a physician may warn that patient of his duty, if necessary, at the peril of having the warning extended to the person so put in danger. But knowledge conveyed by a patient in order to make his treatment possible and effective, should be considered as the patient's own property; not that of the practitioner.

Regard for the *mental* comfort and advantage of his patient must always be sedulously maintained by the physician. (Excuse the expression *his* patient; since we have in English no possessive common to the two sexes.) Cheerfulness (not levity, of course) ought to be cherished as a boon in the sick-room. Should we, then, flatter and falsify, even in view of the worst prognostications? No. Such a course is both immoral and inexpedient. Some physicians appear to think differently. I knew one of the acutest of our diagnosticians to say to a patient, two hours before her death, "I am glad to see you so much better this morning." Probably this was said almost unconsciously, under the force of habit; a bad habit.

Yet we are to use the "cordial, hope," as far as we can. While there is life there is hope. The word *if* is often very serviceable. "Doctor, is it possible that I can get well?" "You know that you are very ill; but *if* we can only find this cough giving way, your night's rest and strength coming again, then—." But it ought to be the physician's duty, under most circumstances, to inform the family, or nearest friends, of the patient, of the probable approach of death, leaving it to them to take the responsibility as to when and how it may be conveyed to him.

Sometimes the physician has, by the conditions of the case, made himself the nearest friend to his patient. Then a duty may spring up beyond the professional line, as between man and man, or between woman and woman. For example, to warn an inebriate, just rescued from delirium tremens, or a victim of other vice, barely escaping its worst penalties, of the danger possibly not again, if incurred, to be so overpassed, may become a measure of moral treatment which no one else can administer so well as a medical attendant.

When a patient or his family desires a consultation, it ought not, as a rule, to be declined. The attending physician rightly has a voice as to the selection of a consultant. If one who is for any tangible reason not acceptable to him is insisted on, he has the alternative of withdrawing from the case.

Responsibility in regard to attending members of one's own family during illness is rather an individual matter; it cannot be reduced to rule. To show how differently physicians feel about it, I may mention two instances. I was told by the elder Professor Hodge that, after he had been married and in practice for several years, his child was threatened with a convulsion. He cried out, at the moment, forgetting his own vocation, "For heaven's sake, somebody run for a doctor!" My other example is of a contrary kind. The late Dr. Joseph Parrish and Dr. Joseph Hartshorne, early in this century, were intimate friends. The wife of the latter being ill of a prevailing fever, Dr. Parrish feared that, as his friend, a pupil of Dr. Rush, was a frequent user of the lancet, he might resort to that remedy in his wife's case, with the effect, should the result prove fatal, of not only her loss, but also that of his reputation and practice. He therefore generously offered his services in consultation, The offer was declined; the doctor bled his patient, and she recovered, surviving them both for many years.

A few words here in regard to *fees*. Ours is a liberal profession. As was the case from the beginning with the ministry of the gospel, and for a long time, also, at least in Great Britain, that of the counsellor-at-law, the service of the physician was once recognized as being not measurable in coin or currency. What would not a man give, if needful, in return for his life, or for rejuvenated health? But, from the necessity of the case, since physicians, like others, must live, and must not be left to the caprice of gratitude or ingratitude of patients; custom, finally fortified by law, has established a claim for definite charges for medical, surgical, and obstetrical services. It is right to make full usual charges when patients are able to meet them. Underselling or underbidding each other in medical practice is an unbecoming and, in the long run, a mistaken policy. With the poor, reduction must be made. How to do this, may be safely left to the practitioner, remembering only the common duty of humanity.

3. It is in regard to the duties of physicians toward each other that most of the questions have arisen which have been and now are in debate. What are the principles involved? Clearly, those of justice, honor, and courtesy. Justice, in the full recognition of the rights and valid claims of others; honor, which has in it an element of generosity, holding itself above mere Shylock justice or mean exaction of technical claims; and courtesy, which considers the feelings as well as the rights and interests of others.

First, a physician should not *advertise*. Why not, as it is done by those of almost all other vocations? Because the mercenary idea of competition, by a public display or assertion of advantages or successes, is incompatible with the liberality and dignity of our profession. Theoretically, it is not always easy here to draw a precise line. Three-quarters of a century ago, a physician, who afterward obtained a large practice, refused to put up a sign on his shutter, or even to have his name on his door. His friends, he said, knew his residence, and others could find it out if they would. This would hardly do among us now. Abstractly, it is not easy to see objection to the simple announcement of a name and location, in the daily papers; but usage has never made this acceptable. Removals are sometimes so announced, for convenience, especially in large cities.

Indirect advertising is very derogatory to the dignity of the profession. Examples of this are mentioned in the Code: "Publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases and operations in the daily prints, or suffer such publications to be made; to invite laymen to be present at operations, to boast of cures and remedies, to adduce certificates of skill and success, or to perform any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician."

Secondly, a physician must not hold a patent for any medicine, nor a surgeon for any instrument. Why not? Because the broad purpose of contributing to the preservation and restoration of health, prolongation of life, and relief of suffering, is not to be limited by any restriction for individual advantage, such as patents impose. Monopolies and secret remedies are thus ruled out. Nor should physicians encourage the use of patent medicines, whatever may be their proprietorship. A difficulty is here imagined to exist, if a remedy of which the composition is kept secret should be proved to have positive and superior value—have we then a right to withhold its benefits from our patients? Our answer is, that such a question is not a practical one, in the present state of science. I do not believe that there is in the world to-day a single *nostrum*, of real medicinal value, the composition of which has not been, or may not be, ascertained by chemical analysis and made known to the profession. There are, it may be added, principles of ethics applicable to pharmacy also; and these are now obtaining increased attention on the part of pharmacists, in this country and elsewhere.

May a physician put up his own prescriptions? Certainly, if he prefers it, and has time and proper facilities. In the country, it is sometimes a necessity to do so. May he employ or designate one druggist only, to be resorted to by his patients? It is not in accordance with sound ethics to do so for a percentage of profits. It is possible, however, that in some neighborhoods there may be one druggist so much more reliable than others that it is right to recommend him for the advantage of patients.

No moral principle is involved in *Latinizing* prescriptions. Besides old usage, I know of no good reason for it, unless to prevent patients or their friends from being disturbed in mind by finding out what medicines are prescribed. This concealment is, nowadays, seldom allowed. Doctors are not autocrats now, as they were fifty years ago. The schoolmaster, being abroad, has carried his interrogation mark into the sick-room and the apothecary shop; and, generally, the interrogations have to be answered. Yet an attempt suddenly to change prescription-writing into English would be likely to lead to confusion or obscurity, which might for a time be even dangerous.

Although not here quite in place, it may be remarked that a very heavy responsibility rests with every physician, that his prescriptions be clear and accurate. Never let a written prescription leave your hands without very carefully going over it all, once, if not twice. I have a grudge against Dr. S. Weir Mitchell, because in his story, "In War Time," he makes it seem possible for a physician to poison his patient to death by accidentally giving him an aconite lotion instead of an intended mixture. Such an occurrence should be quite out of the question either in truth or in fiction.

Following the Code, we may refer to the very proper usage, of physicians attending each other's families without charge for such service. Practitioners are stated to be entitled to such mutual aid. Neither the letter nor the spirit of the Code extends the claim, as of right (whatever may be done through courtesy) to those who, though graduates in medicine, are not practitioners. With these, also, there is a limit to the obligation which ought to be incurred, at least by one who is affluent, in arduous or prolonged attendance. For this, an *honorarium*, when offered, should not be refused.

Exchange of attendance upon patients, on account of absence, sickness, etc., ought to be freely consented to; the fees (except for labor cases) going to the practitioner thus substituted by another. Such services, however, should be mutual, as far as possible. A wealthy physician should not, during repeated long vacations of mere pleasure, impose upon a junior practitioner the toils of his practice, without remuneration.

One physician acting for another during his absence, has no right to supersede him with any of his patients on his return. I will not affront the professional ear by speaking of the possibility of one practitioner stealing another's practice; but such misdoing is at least conceivable, if not possible. A high-toned physician will decline, even though urgently requested, to take charge of a patient or family attended during, and on account of, the absence of another; at least without that other's express consent.

Consultations, as already said, should not be refused when asked for. I must differ slightly from the Code where it says that "in consultations the good of the patient is the sole end in view." It is certainly the chief end; almost the sole ultimate end. But it is also a right purpose, especially when the attendant is a young practitioner, to have his judgment sustained, and the confidence of the patient and his family strengthened, by the concurrent opinion of a consultant. It is well understood that there are some surgical and obstetrical operations which should not be performed without a consultation, unless under circumstances which prevent its being obtained, and in the presence of a clear and urgent necessity.

With whom should consultations be accepted? Of course, with all educated and graduated practitioners of regular medicine, whose personal characters present no obstacle. I say, of *regular medicine;* accepting the language of the Code: "No one can be considered as a regular practitioner or a fit associate in consultation, whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the profession."

Here is a point of cardinal difference between the advocates of the old and of the new, or of no code. Why, it is argued, may we not accede to the popular view, that there are diverse "schools" of medicine, which may bear friendly relations to each other, and sometimes interchange consultations? We answer this, first, with a counter-question: Is not medicine a science? And is not science always one? Can there be different *schools of science?* Are there two or more schools of chemistry or of astronomy? It is true there are, or have been, the old and the new notations; but they concern

nomenclature only; the great facts and laws of chemistry are, in treatises and in laboratories, the same for all. Astronomers still have somewhat different theories of the sun's corona, of the nature of comets, and of the causation of solar heat. But the science of astronomy is one; and has been so, since Galileo, Newton, and La Place; except only, as to facts, that brother Jasper, of Virginia, still believes the sun to move around the earth. When, then, any one claiming to belong to a school of medicine tells us that to divide a particle a thousand times increases a thousand-fold its medicinal potency, is this science, or is it—Jasperism?

But, the great fatal fault to be found with homœopathy, hydropathy, eclecticism, and the rest, is, not what they would add, but what they subtract; by their repudiation of the accumulated experience of the profession. If it were demonstrated that Hahnemann's principle of infinitesimalism were true, it ought to be, and would be accepted and incorporated into the body of medical science. Or were his theory of "similia similibus" shown to explain any therapeutic results, or to be capable of application in practice, it should and would be accepted; but not to the rejection of anything else which has been already known and proved. The exclusiveness of such dogmas is that which condemns them at the bar of medical ethics.

Yet, it is urged, What will you do in regard to emergencies? Will you allow a patient under the care of a homœopath to suffer, and perhaps die, rather than aid him with your advice in consultation? I deny that a regular practitioner need ever be driven into such a dilemma. If it be a difficult diagnosis for which aid is wanted, let the homœopath step into another room, and your opinion can be given without recognition of his professional standing. Or, if it be a desperate case requiring new light upon treatment, let him withdraw altogether, or be dismissed, and the case may then be taken charge of by a regular practitioner. In any case, as to practice, what is the use of trying to combine things which are, in their nature, incompatible? Materia medica, through its handmaid, chemistry, may answer this question: only a precipitate can be thrown down, which must be entirely inert and useless.

Time does not allow me to dwell on the almost minute, but very sound, advice of the Code in reference to the duties of physicians in connection with consultations. Even etiquette, however, is not without its propriety and value here; as in the usage according to which the attending physician enters the sick-room first, and leaves it last; and which forbids any opinion or direction being given the patient or family by the consultant, the attending practitioner being the spokesman of the united judgment resulting from the consultation. It is true that the regular attendant may sometimes desire the consultant to convey his opinion directly to the patient and family; and then there can be no objection to its being done.

An embarrassing example of the obtuseness of many unprofessional people in regard to the needs of medical ethics, occurs in the frequency with which a physician is asked to give an opinion, without consultation, in a case under the care of another. One may sometimes be thus "trapped" into an unintended interference. It is well, in order to avoid this, to omit, unless for urgent reasons, social visits even to near friends, when under medical care for illness.

Nothing can be plainer, according to the simplest conceivable code of medical honor, than that a consulting physician should be scrupulously careful of the reputation of the attendant whom he meets. Such a remark, for example, to any one concerned, as that "If I had been called in sooner, I might have helped the case," is inexcusable. A consultant should, as a rule, refuse to take charge, individually, of a patient whom he is first called to see in consultation with another.

Similar care is needed, and is sometimes annoyingly baffled, in regard to changing from one physician to another in the course of an illness. This should always be discouraged; but it cannot in every case be forbidden. The essential point of ethics here is, that a new practitioner cannot begin to attend, except in consultation, unless the old one has left, or has been formally dismissed from the care of the case. Few physicians long in practice have escaped being sometimes undesignedly put in a wrong position in such a matter; unprofessional persons so obstinately maintaining that "medical etiquette is all nonsense."

4. Physicians have important ethical relations to the general public; to the communities in which they live. They are needed often as sanitary advisers. There is now a profession, that of sanitary engineering, among whose members are men of eminent ability, knowledge, and usefulness. Yet, without a medical education, I cannot think that the highest qualifications for extended sanitary service can be well obtained.

Medical attendance upon medical charities, as hospitals, dispensaries, etc., involves very important and often laborious duties. How far these should be gratuitously performed, is an interesting question. On account of the advantages, in experience, reputation, and acquaintance, which they afford, hospital and other like appointments are often sought by competent men and women, without the inducement of salaries. Yet institutions possessed of large means ought not to require the expenditure of much time and labor on the part of their medical officers without remuneration.

In times of the prevalence of epidemic diseases, as cholera, yellow fever, etc., physicians should not only be assiduous in rendering professional service, but they should be examples of fidelity, courage, and self-sacrifice to others. What the first Napoleon called "two-o'clock-in-the-morning-courage," is here needed, a heroism as genuine as that of the field of battle or the quarter-deck of the man-of-war. However we may estimate the opinions of Robert Koch in regard to the causation of cholera, none can hesitate to honor his intrepid devotion to the cause of science, shown in his visits to Egypt, India, and France, carrying on his investigations in the midst of danger and death. Whoever else may leave a city or community during a time of pestilence, the physician should, like the captain of a ship at the time of a wreck, be the last; never leaving his post till the peril has passed by, or (which is often the most desirable consummation) all liable to attack are removed to an uninfected locality.

Lastly, there is a duty owing, as the "*esprit de corps*," from physicians to the profession itself as an organized body. You are to endeavor, under all circumstances and associations, to maintain its good name, in the view of the general public. Loyalty to the profession is a needful virtue. Let it not have its title degraded by any

restrictive epithet. Never accept *allopathy* as a synonym for regular scientific medicine. That term means only the opposite idea to the "similia similibus" dogma of homœopathy; and under no such designation should the broad, catholic scope of legitimate medicine be "cabin'd, cribbed, confined."

Is it not easy, without any binding Hippocratic oath, to be loyal to such a profession, with such possessions and attributes; with the dignity of an extended and advancing science, and the intellectual fascination of a skill-demanding art; its duties only and always those of benevolence; its rewards, besides reputation and a moderate competence, if not wealth, the higher treasures of personal and family friendships and attachments, often among the warmest, strongest, and happiest known in human experience?

ORIGINAL ARTICLES.

DISEASES OF THE UTERINE APPENDAGES: THEIR RELATION TO PELVIC ADHESIONS, DISPLACEMENTS, AND ABSCESSES.[1]

By W. GIL WYLIE, M.D.,

PROFESSOR OF GYNECOLOGY IN THE NEW YORK POLYCLINIC

Since May, 1883, I have operated on thirty-seven women for the removal of diseased uterine appendages, not including ovariotomies and other operations for large tumors of the ovaries. Twenty-five of these have been reported (fourteen on January 15, 1885, and eleven on June 19, 1885), and published in the *Medical Record* of February 7, 1885, and August 29, 1885.

Of the thirty-seven, thirty-three recovered and four died. Two of the latter were complicated by pelvic abscesses at the ends of the tubes and around the ovaries; a third was complicated by hæmatocele attached to the left ovary, and the fourth, on account of extensive adhesions and degenerated state of the ovaries, required considerable exposure of the peritoneal cavity in operating. Thus there was material liable to cause autoinfection in these, and none were simple cases.

Thirty-four of the thirty-seven cases had marked peritoneal adhesions. More than one-third were well marked cases of pyosalpinx, and eight were either complicated by abscesses or the tissues about the tubes and ovaries were infiltrated with pus. The sac of one abscess that was lifted up with an ovary held five ounces of pus, and in a second case a similar abscess held three ounces. Twenty-three were hospital, and fourteen private cases. Three of the former and one of the latter died.

The hospital cases were chiefly selected from three large dispensary clinics, where every year hundreds of women suffering from local peritonitis, the result of diseased tubes or septic poison reaching the peritoneal cavity through the Fallopian tubes, present themselves for treatment. Most of the private cases came to me from my friends in the profession who knew that I was especially interested in such cases. If one would follow the text books on gynecology, most of these thirty-seven cases would have been classed as chronic cellulitis; four or five would have been called cases of pelvic abscess, and quite a number would have been called ovaritis.

With the exception of three or four cases operated upon for cystic degeneration which was supposed to be the cause of hystero-epilepsy, almost all were at times bedridden by repeated attacks of local peritonitis. It is yet too soon to speak positively about the results of the operation in all classes of cases, but I can say without hesitation that in those cases where the subjective symptoms were chiefly actual local pain and physical inability to go about without causing persistent pain—and almost all the cases of pyosalpinx would come under this head—the results were good and satisfactory both to the patient and physician. In many cases the relief from pain was gratefully acknowledged at once.

In those cases where the subjective symptoms were chiefly reflex and of a nervous order, the immediate results were by no means always satisfactory, although, many completely recovered after being seemingly unimproved for several months. I have repeatedly refused to operate on this class of cases, unless I could plainly make out by bimanual examination that the ovaries were enlarged by cystic degeneration. I have yet to see a well-marked case of hystero-epilepsy or decided hysteria operated on, in which the ovaries were not found in a state of cystic degeneration or very much atrophied. And these are nearly always associated with an imperfectly developed or atrophied uterus.

The class of cases which will not only test the educated sense of touch and practical ability to diagnosticate and skill to do a successful operation, but will also give many opportunities actually to save life, are to be found among those cases complicated by small pelvic abscesses. The ability to diagnosticate will be shown by detecting them before they have either penetrated into the connective tissues below the peritoneum and formed large pelvic abscesses, or, what is of still greater importance, before they have broken through the layer of lymph thrown out by the peritoneum to shut the diseased organ and tissue from the peritoneal cavity, and cause general peritonitis and death. The skill in operating will be shown by either removing intact the diseased organ and sac of the abscess, or by removing most of the sac and washing and draining the peritoneal cavity so as to avoid septic poisoning and death.

It is true that the vast majority of pelvic abscesses open into the vagina or intestines, or somewhere below the peritoneum, and that they do not often kill, but we also know that many burst into the peritoneum and cause death without ever being detected until the autopsy is held. Beside we know what tedious affairs pelvic abscesses are, even when opened and drained by the vagina.

You will better understand the importance that I attach to the above remarks, when I tell you that, in my opinion, certainly four out of five of all pelvic abscesses have their origin in either the Fallopian tubes or the ovaries, or in the inflammatory tissue that mats these organs together when diseased.

[1] Read before the Medical Society of the State of New York, February 2, 1886.

If my views on the surgical pathology of diseased uterine appendages are correct, it is easy to explain why, if pelvic abscesses are really abscesses beginning in intraperitoneal tissues. they should nearly always penetrate below the peritoneum, and only now and then cause general peritonitis by breaking into the peritoneum.

I think it will also explain why the bladder is, comparatively speaking, so seldom involved in peritoneal inflammation, and why the indurations and thickenings due to peritoneal inflammation, even when below the plane of the vaginal junction, are found to be not indurated cellular tissue, as Dr. Emmet says they must be if below this plane, but are really the prolapsed ends of the tubes and ovaries surrounded by peritoneal exudations, as is now so frequently shown by laparotomies and autopsies, whereas the indurated tissue due to cellulitis so much written about by some of our most honored teachers, has been searched for in vain.

It will, I think, also make clear the real significance of retroversions with adhesions, and lateral version with adhesions, and explain the great difficulty in getting satisfactory results in such cases from the use of pessaries, and also explain why their use every now and then is followed by attacks of local peritonitis.

To understand clearly what takes place when the uterine appendages are diseased, it is necessary to remember that the broad ligaments are attached to the uterus from the vaginal junction nearly to the top of the fundus on either side, and extend laterally to the side of the pelvis, where they are attached in such a way that they cannot be shortened by contraction or thickenings of the tissues, or twisted either forward or backward without more or less displacing the uterus, or greatly impairing its normal mobility; that the ovaries lie partly embedded in the peritoneum which covers the posterior walls of the broad ligament; that the Fallopian tubes run along the upper and anterior border of the broad ligaments, and are covered by the same fold of peritoneum that covers the broad ligament, except at their fimbriated extremities, where they open directly into the peritoneal cavity; that one of the fimbriæ of each tube attaches it to the ovary of the same side and holds its open end in such a way that any fluid escaping from it would fall behind the broad ligament, especially when the patient is in bed or upon her back. Now if the upper border of the broad ligament is carried backward and downward, not only are the tube and ovary prolapsed, but the fossa behind the broad ligament and in front of the posterior wall of the pelvis is covered over by the broad ligament with the tube and ovary rolled in behind it, and if the broad ligament is made adherent in this position by adhesion of abundant lymph, practically, the tube and ovary of that side are turned out of the cavity of the peritoneum. If this be true, it is easily understood why an abscess found in the end of a tube or in the ovary will more frequently penetrate into the connective tissue below, instead of upward through the several layers of the whole thickness of the broad ligament, which is so rich in bloodvessels, and, therefore, so well prepared to resist ulceration and perforation. In those cases where I have seen perforation into the peritoneal cavity, the distended tube or suppurating ovary has not been rolled up in the broad ligament, as is the rule when they are diseased, but is above the broad ligament, or the growth has, by rapid increase in size, unrolled the broad ligament instead of penetrating the tissues below.

The following, on the surgical pathology of diseased uterine appendages, is taken with very slight change from my paper read before the New York Academy of Medicine, January 19, 1885, and published in the *New York Medical Record* of January 24, 1885, in which I give in full my views of diseases of the Fallopian tubes, and the details of operating for their removal.

The first effect of disease reaching a tube, is to cause it to become engorged with blood; as it is loosely attached to the upper border of the broad ligament, it sinks lower in the pelvis covering or folding over the ovary, and as the beginning of salpingitis, after labor or an abortion, is so often associated with an enlarged uterus, this organ sinks lower, and as the patient during the acute stage is, as a rule, on her back, the fundus inclines backward. Now, suppose the uterus is enlarged, lying backward, and the disease affecting the uterus extends to the tubes, they swell, sag backward and downward, covering the ovaries, and as soon as the discharge or the disease reaches the peritoneum through the open end of the tube the peritoneum becomes inflamed, lymph is thrown out gluing the different organs together; the end of the tube and ovary being embedded under the broad ligament, which by lymph is made firmly adherent to the tissues on the posterior wall of the pelvis, thus virtually shutting out the diseased tube or ovary from the peritoneal cavity. As the acute stage subsides the lymph contracts, bands of adhesion draw and distort the organs, and the folded, twisted, and adherent broad ligament holds the uterus in its backward displacement. As a rule, the peritoneal tissue covering the fundus is not adherent to the tissues behind the uterus, although this seems to be the case when an examination *per vaginam* is made. The uterus may sink lower, being drawn down by contraction of the adhesions, and the fundus may become retroflexed, or the cervix with the vaginal junction be lifted upward and forward when the adhesions are extensive and the contraction great. The Fallopian tube being small, especially the uterine end, and displaced, the lumen is stopped, the discharge accumulates, distends, and leaks into the peritoneal cavity, a fresh attack of peritonitis sets in, more lymph is exuded, and as the acute stage subsides the tubes and broad ligaments are rolled back and folded in more and more; as the contraction goes on, the tissues harden and the tubes may form strong cords, which, being adherent to the floor of the pelvis, fix the uterus in its retroflexed and retroverted position; thus we have cases of retroversion with adhesion, and it is the rolled up ligaments and tubes which fix the uterus backward; and it is the embedded ovary and diseased tube in the tissues of the broad ligament which make it next to impossible to insert a pessary and hold the uterus up without causing pain and running the risk of bursting or tearing a tube distended

with septic or irritating fluid. By the expenditure of much patience and time we can, in many cases, stretch the ligaments, and by force get the fundus uteri into that ideal normal position, but to keep it there is the rub; the rolled-up broad ligaments will not unroll, and when put on the stretch by the uterus being held up by force, they soon begin to ache, inflame, and may cause local peritonitis.

Now suppose only one tube is affected, the retroversion will be less, and if the other side is not affected the uterus may be even a little anteverted, unless the inflamed tube drops to the floor of the pelvis. If the ovary and the tube of the affected side are prolapsed and inflamed, as contraction takes place the broad ligament is shortened, especially on its lower side, and unless the tube and ovary are very much distended, so as to displace the uterus bodily, the cervix is drawn to the affected side, the fundus being tipped toward the healthy or less affected side, which is usually the right side, and the swollen ovary and tube may be forced backward somewhat behind the uterus. Thus we have characteristic cases of lateral flexion produced. When only one side is affected, it is usually the left; the circulation on this side, from the formation of the veins and the proximity of the often-distended intestine to the left broad ligament, seems to make it more susceptible to congestion, prolapse, and disease than the right side. When both tubes are involved, the left is probably the first to become affected, this, together with the natural position of the uterus being that with the fundus inclining slightly to the right of the centre, accounts for the fact that where both tubes are affected and the uterus is not retroverted, the cervix is drawn to the left and the fundus to the right, the left ovary and tube being prolapsed, and the right usually much less prolapsed. In nulliparous women, especially in those cases where the uterus is anteverted or anteflexed, and where the disease is gradual in its progress, this condition of the right lateral flexion with the fundus forward is most likely to be found; whereas, after labor and abortion, salpingitis is frequently associated with more or less retroversion. Sometimes the prolapsed tube, especially in the left side, is adherent to the sigmoid flexure or to the small intestine, and the omentum may have slipped down, especially when the uterus is retroverted, and becomes adherent over and in front of all the pelvic organs, when it has been thickened and the blood-vessels greatly enlarged by repeated attacks of local peritonitis or general peritonitis. To the inexperienced it is a formidable barrier; years ago I saw even Dr. Sims close the abdomen rather than run the risk of going through it to reach the ovaries beneath it. These are the cases where eminent men will tell you that they opened the abdomen, but could not find or reach the ovaries and tubes, and therefore closed it. When describing the operation, I think I can make it plain that by a simple procedure this apron of bloodvessels can be safely removed. It has enabled me to complete the operation of removal in even the worst cases. Where the local peritonitis is limited, as the tubes open near the ovaries which protrude through the posterior surface, the adhesions are, as a rule, confined to the posterior layer of the broad ligament; this accounts for the rarity with which the bladder is affected by the adhesions. The ureters are not uncommonly affected by the adhesions, especially when the adhesions are low on the floor of the pelvis, and in tearing up very old and firm adhesions, the ureter may be lifted up; on one occasion it would have been tied had I not recognized it as it was lifted up by the operator.

I have here the histories of twelve cases operated upon since Oct. 5, 1885. From these I will select two characteristic cases of pyosalpinx and read the histories and show the specimens, and I will also read the history and show the specimen from a case upon which I lost the opportunity to operate. The other specimens are twelve that I have selected from those obtained from the thirty-seven women that will best illustrate genuine cases of pyosalpinx, and hydrosalpinx, and degeneration of the ovaries.

Case 1. *Pyosalpinx complicated by an abscess.*—M. A., German, aged twenty-two, married, admitted Oct. 30th. Has had one child and one miscarriage, last pregnancy being about seven months ago. Menstruation began at fifteen, and was always normal up to last time. Then there was an interval of only ten days and she flowed again for nearly two weeks. About two weeks after last confinement she had pain in her back and left inguinal region, which has been growing worse. It is intermittent and at times very severe. After her admission to the hospital she had several rises of temperature to 103½°, preceded by chills and accompanied by vomiting, tympanites, and pain and tenderness in lower part of abdomen. Examination showed to right of uterus a firm, rounded mass, at first about the size of a crab-apple, but which within two weeks steadily grew to the size of an orange and was fixed in the broad ligament. To the left was a similar but smaller mass. This patient had been coming to my clinic, at the N. Y. Polyclinic for several months, and the case had been diagnosticated as one of chronic salpingitis, and was sent to the hospital after acute symptoms of local peritonitis had begun and the increase in the size of the cyst, in the right side, detected. Nov. 12th, median abdominal incision, somewhat larger than usual, was made. The tumor in the right broad ligament was found strongly adherent to uterus, intestines, omentum, and pelvic wall posteriorly. The adhesions were separated with difficulty, and the ovary and tube lifted up. In securing the pedicle the sac was ruptured and a few drops of pus escaped, but it was caught by sponges, and probably none entered the peritoneal cavity. About three ounces of pus were drawn off with an aspirator and then the pedicle was ligated and the tumor cut off. The ligated end was seared with the actual cautery and returned to the abdomen. The left ovary was enlarged and somewhat adherent, and the left tube was in the condition of pyosalpinx, the walls being infiltrated and œdematous. This œdematous condition extended to the cellular tissue and caused the pedicles and broad ligaments to be much thicker than usual. This is the condition called cellulitis, which usually precedes the extension of a pelvic abscess, etc. The

tubes were now deligated and cut off, the stump being treated as on the other side. The abdominal cavity was then washed out with warm bichloride solution 1 : 10,000 and then with warm water which had been boiled. The abdominal wound was then closed, Tait's straight glass drainage tube being inserted into the peritoneal cavity. Temperature rose steadily, until twenty-four hours after the operation it was 103⅓° per vagina. The wound was then dressed and the drainage tube cleaned out with a solution of carbolic acid 1 : 100. Temperature then fell and remained between 101° and 102° per vagina, till the third day when, as there was but little discharge from the glass tube, it was removed and a rubber drainage tube inserted. After this the temperature rose rapidly to 103⅔°, and this rise was accompanied by considerable vomiting. After twelve hours, however, it began to fall and reached normal on the sixth day, after which it did not rise again. Wound united by first intention except where drainage tube had been. On Dec. 7th, vaginal examination showed some thickening of perituterine tissues, but the uterus itself was freely movable, and the patient was free from pain. She was discharged on Dec. 10th, cured.

Case II. *Pyosalpinx converted into pelvic abscess.*—Mrs. P., nativity U. S., aged thirty-nine, married, last pregnant eleven years ago, has had three children, no miscarriages. Jan. 20th, she gave this history. Was healthy and well until some time after last pregnancy, then suffered from displacement, etc. Six years ago I sewed up her cervix and perineum, and later fitted a pessary, to correct retroversion. Since then she has worn a pessary, and up to the time of last menstruation, about two weeks ago, she felt well, had no pain and considered herself in good health. The flow was very slight, and since then she has had a steady aching pain, chiefly in her left side, over the inguinal region and down the leg. This has gradually increased, and although she has felt sick and weak, she has kept up and about. She has had chilly sensations, but is not certain about having had fever. On physical examination, a distinct cystic mass can be felt to the left of the uterus, pressing down in the pelvis, below the level of the cervix uteri; the mass is in the broad ligament and is about the size of a small lemon. Right broad ligament is thickened, and uterus fixed nearly in its normal position.

I saw her a few days later and found that the cystic tumor on the left was larger; diagnosticated cystic ovary and salpingitis, and decided to aspirate with a fine needle through the vagina, to determine the nature of the cyst, and I thought I could define a similar cyst in the right broad ligament. Three days later, Jan. 28th, she had a troublesome diarrhœa and I prepared for aspirating, and also to do laparotomy if I thought best, while she was under ether. After washing out the vagina with a solution of bichloride of mercury, in Sims's position, I inserted an ordinary hypodermatic needle into the tumor, a little behind and to the left of the cervix, and drew out pus. With patient on her back, by vaginal examination, I found two distinct tumors, but that on the right side was well up in the pelvis and could not safely be reached through the vagina. I diagnosticated pyosalpinx and ovaritis complicated by abscesses. I could have very easily opened and drained the left cyst by the vagina, but on account of the right side being inaccessible from the vagina, I decided it was my duty to remove both by laparotomy, and at once proceeded to do so. The abdomen was opened in the median line—the opening in the peritoneum being made large enough to enable me to use freely two fingers, in separating the adhesions. The omentum was adherent over the fundus and both cysts; this was removed and the cyst on the right was exposed; it reached above the brim of the pelvis and it was carefully enucleated from its bed of adhesions, and by enlarging the abdominal opening it was lifted out, and consisted of the right tube distended into the shape of a cornucopia, with the ovary the size of a large lemon, fixed in by adhesion and filling the large end. The ovary was really a bag of pus, that seemed to communicate with the fluid in the distended tube. With an aspirator three ounces of pus were drawn off. This was done to prevent the sac bursting and its contents escaping into the peritoneum, while it was being tied off. After the aspirator needle was withdrawn, the opening made by it was closed with pressure-forceps, the pedicle was tied with a Staffordshire knot and the cyst cut off. One side of the ligature did not tighten or cut through the tissues, and it was necessary to catch up the broad ligament and tie it again. The stump was seared with a thermocautery and put back into the peritoneal cavity. The left broad ligament was carefully loosened from the posterior edge of the brim of the pelvis, where it was turned back and held firm by adhesions. The tube was found distended with its end filled up with a cyst as large as an orange. In separating the adhesions of this cyst from the floor of the pelvis, it was found firmly adherent to the rectum near the sigmoid flexure—the cyst burst and several ounces of pus escaped. The sac was quickly unrolled from behind and underneath, the broad ligament lifted out and tied, and treated as that on the right had been. Then the peritoneal cavity was washed out (irrigated) with a gallon of 1 to 10,000 solution of bichloride of mercury, and this was followed by water that had been boiled. Then the abdomen was carefully sponged out, a glass drainage tube introduced, and the wound closed around it with silk sutures and sprinkled with iodoform. A cotton dressing was applied, which was strapped on so as to make even, elastic pressure over the whole abdomen. The time of operating was fully one hour and a half, and there were no symptoms of shock. One sixth of a grain of morphine was given hyperdermatically every six or eight hours, and only drachm doses of hot water allowed to be taken for the first thirty-six hours. At that time her pulse was 115, axillary temperature 101 4°. There was no vomiting and no tympanites; and now on the seventh day, her pulse is 84, temperature 99°, and she is in good condition, taking a glass of Kumyss every two or three hours.

Case III. *Pyosalpinx, followed by abscess and finally general peritonitis and death.*—M. C. T., aged thirty-two, married Dec. 23, 1885, was admitted to my ward at Bellevue with temperature of 104.4°, and other positive symptoms of extensive pelvic peritoni-

tis. My house-surgeon made a vaginal examination and found a thickened mass in the left broad ligament, and the uterus firmly fixed. She said she had had one child eight years ago, but had never been pregnant since. Until a few months ago she had menstruated every three weeks, and since then the flow had been irregular, sometimes lasting two weeks. For some time past she has had a pain in the left side of the abdomen. Two days before admission she had a chill and the pain became much worse. The next day she vomited a thin greenish fluid. She also said that within the past two or three years she had had a similar attack of inflammation several times, but never so severe as this one. I saw her twenty hours after admission. She had a rapid but good pulse, and the temperature had fallen from 104.4° to 102.6°. There was some slight tympanites, but the tenderness was confined to the pelvis, and her general condition was very good. I diagnosticated local peritonitis, due to salpingitis, and told the assistant house-surgeon, who was then on duty, to watch her closely, and to send for me if any signs of extension of the peritonitis showed themselves, telling him that if the peritonitis became general or dangerous to life that I would operate at once. For twenty-four hours her condition remained about the same, and then unmistakable signs of extension of the peritonitis showed themselves, but from a misunderstanding on the part of the assistant, I was not sent for until fourteen hours later, when temperature was 105.6°, and pulse 150, and patient completely insensible. Thus I missed the chance to operate. This specimen shows a dilated tube and adherent ovary forming the sack of an abscess of ten or twelve ounces, which burst or ulcerated through the adhesions into the peritoneum, causing death by general peritonitis. I should have operated when I first saw her, but thought the acute attack of pelvic peritonitis would subside as it had done before, and that I would have an opportunity to do laparotomy under more favorable circumstances. If I had been notified even a few hours earlier her chances under an operation would have been nearly as good. I might have opened the abscess by the vagina, but had I put her under ether to do so, the sac would in all probability have ruptured into the peritoneal cavity while she was struggling during etherization, or when the trocar was inserted, and general peritonitis and death supervened, unless the rupture were recognized and laparotomy and washing out and drainage of peritoneum done at once.

CASES ILLUSTRATING THE TREATMENT OF CONTUSIONS OF THE LARGER ARTERIES.

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Case I. *Lacerated wound of the thigh; contusion of femoral artery; ligation; secondary hemorrhage; gangrene, and death.*—Patrick C., aged thirty-five years, was admitted to the men's surgical ward of the University Hospital, under the care of Prof. Ashhurst, on July 18, 1884, with an injury which he had received in the following manner. He was one of a gang of laborers employed in building a railroad in the vicinity of Chester, Pa., and while asleep in a cabin a portion of a rock projected from a blast, came through the roof of the cabin and struck him in his right groin, producing a lacerated wound which bled freely at the time. Upon examination, a few hours after the accident, on his admission to the hospital, the patient showed no marked constitutional symptoms of excessive loss of blood; the right limb was pale, and its temperature was lower than that of the left; further examination revealed the fact that pulsation was absent in the popliteal, anterior, and posterior tibial arteries of the injured member. Upon the upper portion of the right thigh, there was a lacerated wound about four inches in length, a short distance below Poupart's ligament and running parallel with it. The edges of this wound were widely undermined; and upon everting them, a very extensive dissection of the anatomical structures of the part was presented. The inner edge of the external wound extended to a point just short of the line of the femoral artery, and upon exploring this further with the finger, the artery could be felt as a firm, fibrous cord, without pulsation.

The patient was etherized, and Prof. Ashhurst divided the undermined skin at the inner edge of the wound and exposed the femoral artery, which was filled with a firm thrombus for several inches; pulsation was plainly seen in the vessel for about an inch below Poupart's ligament. The hemorrhage, which was said to have been free before he was brought to the hospital, seemed to have arisen from the external circumflex artery, which was found lacerated; the internal circumflex artery, the corresponding veins, and the femoral vein, seemed to be uninjured.

Taking into consideration the contused condition of the vessels, Prof. Ashhurst deemed it advisable to ligate the femoral artery in healthy tissue, and accordingly placed a ligature around the proximal portion, just below Poupart's ligament, and applied his distal ligature to the vessel just below the lower limit of the contained thrombus—it being necessary to separate the sheath of the vessel for some distance to expose this point. The ligatures were then secured and the femoral artery was divided at a point midway between them; the vessel was found filled with a quite firm blood-clot; the wound was then cleansed, a drainage tube inserted, the edges brought together by a few interrupted sutures, and a light dressing applied. The limb was enveloped in cotton wadding and the external temperature was maintained by the application of hot water cans.

July 19.—The patient reacted well from the ether; the temperature of the right limb has slightly improved, and the color has become better.

25th.—Doing well; temperature of right leg good; pulsation can now be detected in the popliteal artery and in the posterior tibial artery at the ankle; the external wound looks well.

26th.—The patient had a slight hemorrhage from the wound, which was controlled by pressure; the wound was opened and both ligatures were found in position; it was noticed at this time that a considerable amount of sloughing in the vicinity of the femoral vessels had taken place.

As no further bleeding took place at this time, and as the source of the hemorrhage could not be discovered, the wound was packed with lint and a shot-bag was applied.

On the following day a profuse hemorrhage occurred from the wound, the packing was removed, and Prof. Ashhurst tied the distal end of the femoral artery, from which the ligature had separated, as the bleeding came from this direction. This diminished the bleeding somewhat, but it was found also that free venous hemorrhage still continued, which was only controlled when the femoral vein was ligated. The wound was then closed, and measures taken to keep up the temperature of the limb, and the patient was stimulated freely, as he showed marked constitutional symptoms, resulting from the loss of blood. The patient reacted slowly; on the succeeding day gangrene appeared in the affected limb, and rapidly spread upward to the abdomen, and he finally succumbed about thirty-six hours after the last operation.

Contusions of arteries are a class of injuries which have a peculiar interest to the surgeon, for they not only present an immediate danger, but are also followed by remote consequences which may lead to the most serious results. There is no doubt that contused arteries sometimes recover themselves, and afterward perform their function satisfactorily; whether this will occur or not, is, of course, directly dependent upon the amount of interference with their nutrition resulting from the traumatism. An artery which has sustained a severe contusion may, as the result of that injury, have its inner coat lacerated, and as a direct result of this a thrombus may form at the seat of injury; or, should this laceration not be sufficient to establish an occluding thrombus, the vessel may, at a later period, have its calibre still further diminished by the cicatricial contraction following the inflammatory action consequent upon the traumatism.

This latter explanation is not accepted by some authorities, who think the secondary occlusion is due to a slowly forming thrombus or an embolus, arrested at the roughened or narrowed part of the injured vessel, rather than to the result of inflammatory action.

There is, also, in cases of severe contusion, a possibility that the vessel, the vitality of which has been impaired by the injury, may, in a short time, rupture or slough, giving rise to hemorrhage or a consecutive or traumatic aneurism.

Mr. Bryant[1] reports a case which illustrates the first of these conditions. A laborer, aged thirty-five years, was admitted to Guy's Hospital, May 20, 1880, in a condition of collapse, having been run over by a loaded coal-van. He presented on the left thigh, just below Poupart's ligament, a soft semi-elastic swelling, without pulsation, and also a small wound just below the anterior superior spinous process of the ilium; no pulsation could be detected in the femoral or distal arteries; the external iliac artery pulsated down to Poupart's ligament; the limb was cold, but its sensation was good.

[1] Lancet, July 16, 1881.

Three days after admission the temperature of the affected limb was normal, but it was more than three weeks before pulsation could be felt in the popliteal, anterior and posterior tibial arteries; and when the patient was discharged a short time afterward, the femoral artery could be felt in Scarpa's triangle, as a firm, fibrous cord, without pulsation. This case represents a most favorable termination of a case of this kind, and one in which the collateral circulation was able to carry on the work imposed upon it, and thus was avoided the immediate danger of gangrene; a factor of safety, also, in this case, which should not be overlooked, was the probable escape of the femoral vein from injury.

Of the class of cases in which we have severe contusion of the vessel followed by marked inflammatory changes, the termination is not so favorable. Of these cases I have seen several examples, and can recall one, which, I think, bears directly upon this point.

Case II. *Contusion of the brachial artery; spreading gangrene, beginning on the eleventh day; amputation; recovery.*—A. R., aged twenty-five years, a brakeman, was admitted to the University Hospital, under the care of Prof. Ashhurst, in August, 1882, suffering from a severe contusion of the right elbow from being rolled between the buffers in coupling cars. At the time of his admission to the hospital, the arm below the seat of injury was cold and no pulsation could be detected in the radial or ulnar arteries. The limb was placed upon a pillow and warm water dressings were applied continuously for twenty-four hours, and it was then found that the temperature of the part had improved; and in a few days pulsation had returned in the arteries at the wrist. At the end of ten days the patient was allowed to leave his bed and walk about the ward.

Early in the morning of the eleventh day, the patient complained of great pain in the hand and forearm, and upon examining the part, the hand was found swollen and deeply congested, and a large bleb had formed upon its dorsal surface; the forearm became greatly swollen and in spite of free incisions the gangrene rapidly spread, and by evening had reached a point as high as the upper third of the arm. In the meantime, the patient also showed marked symptoms of exhaustion, had become delirious, and was rapidly losing ground.

When I saw the case for Prof. Ashhurst, the same evening, as he had expressed himself in favor of amputation if the gangrene were still spreading, I considered it justifiable to give the patient the chances which amputation offered, so I accordingly amputated the arm through the tuberosities of the humerus, and the patient made a good recovery.

Upon examination of the limb after removal, the brachial artery and vein were found matted together by a mass of lymph, the vein containing a recent clot, and the calibre of both vessels at the seat of injury, being practically obliterated by the results of inflammatory action in and around their coats.

In this case, I have little doubt that the obstruction of the vein was the immediate cause of the development and spread of the gangrene.

Of that unfortunate class of cases in which the

injury to the vessel has been sufficient to give rise to sloughing of its coats, which may be followed by secondary hemorrhage, or by the occurrence of traumatic or consecutive aneurism, we have many examples, particularly in the records of military surgery, where this accident, following gunshot contusions of the arteries, is frequently seen.

As regards the treatment of contusions of the arteries, the indications are, generally, quite clear: in ordinary contusions, the injured part should be placed at rest, and the temperature of the parts below the seat of injury, if their blood supply be found deficient, should be maintained by the application of external heat, to favor as much as possible the rapid establishment of the collateral circulation.

Inflammatory lesions at the seat of injury can be treated by the application of evaporating lotions, and under this plan of treatment recovery may occur, with either complete or partial obliteration of the artery at the seat of injury, if the collateral circulation, both arterial and venous, is satisfactorily established.

If a traumatic or consecutive aneurism form, either ligature of the vessel above and below the seat of the arterial lesion, or amputation, will be required.

Gangrene coming on primarily or secondarily, if it involves the limb only, will require amputation. Whether this operation should be performed at once, or whether we should wait for the formation of the line of demarcation and separation, will depend upon the rapidity of its spread and the constitutional condition of the patient.

The first case reported in this paper presents some unusual complications, the treatment of which is not generally laid down: in this case, the contused artery containing a thrombus was exposed to view in the lacerated wound, and without the application of ligatures secondary hemorrhage would seem almost to have been invited, while the satisfactory establishment of the collateral circulation showed that the occlusion of the artery itself was not attended with risk of gangrene, which condition evidently resulted from secondary venous implication.

MEDICAL PROGRESS.

Treatment of Vulvar Pruritus in Diabetics.—As a palliative local application in this annoying complication, Blanchet, of Vichy, recommends the use of the following salve:

Oxide of zinc,	
Glycerole of starch . . .	āā 25 parts.
Salicylic acid	1 part.

Prolonged local tepid baths are also of service in acute cases; the prime indication of rational treatment, however, being the diminution of the polyuria.—*Rev. de Thérap.*, March 1, 1886.

Experimental Production of Psoriasis.—Lassar has removed, with a clean metal instrument, scales from the efflorescences of a psoriatic patient, mixed them with the lymph and blood which exude after this treatment, and rubbed the same on the greased cutaneous surface of a rabbit. At the region of such application the hair fell out, the skin became dark red and markedly infiltrated, and bled when but slightly scratched. Scales taken from such a rabbit produce, when transplanted to another animal, precisely similar lesions. Lassar refrains, for the present, from asserting that human psoriasis may be transmitted to animals, but states that the symptoms produced as above described present a very striking resemblance to psoriasis in man.—*Centralb. f. d. med. Wiss.*, Jan. 30, 1886.

Influence of Chloral on Digestion.—From an article in the *Archives Ital. de Biologie*, vi. 3, p. 412, we learn that Professors Fiumi and Favrat had the opportunity, in a man suffering from a gastric fistula and insomnia, to study the effect of chloral on digestion. Finely cut up albumen was sewed up in tiny bags, and from twenty to forty grains of chloral were administered daily in divided doses, one an hour before digestion began, another during the meal, and a third two hours later. All scientific precautions to insure a correct result were employed.

The observations extended over a period of nineteen days. Hydrate of chloral, administered in from twenty to forty grain doses before or at the beginning of a meal, retarded digestion by increasing the secretion of mucus from the stomach, and thus thickening the gastric juice. This effect increases with the height of the dose, and it is specially strong if the remedy be taken while fasting. The acidity of the juice also diminishes, but before an hour is over it has returned to its normal. The secretion of pepsin is not interfered with, either as regards quantity or quality, so that the disturbance can be ascribed only to two factors: increase of mucus by irritation, and diminution of acidity. If the remedy be administered two hours after a meal, provided the dose is not more than forty grains, no effect whatever is observed concerning any influence of the drug on gastric digestion.

The authors, besides, demonstrate the fact that chloral is absorbed but slowly by the gastric mucous membrane, for one or even two hours after its introduction most of the dose was still contained unaltered in the stomach. This explains partly the fact, that its administration by the rectum is followed by a quicker and prompter effect than when given by the stomach.—*Medical and Surgical Reporter*, Jan. 30, 1886.

Intermittent Fever of Twelve Months' Duration: Cure by Subcutaneous Injection of Carbolic Acid.—Incited by the results obtained by Dieulafoy, Narich has used the carbolic acid treatment in the case of a woman who had suffered from intermittent fever for one year, and in whom quinine, alone and in combination with potassic bromide, effected no beneficial result. The solution used was of the following formula:

Crystallized carbolic acid . . .	gr. vj.
Water	f ʒxiij.

In seven days there were, in all, thirty-three injections administered, beginning with two daily and increasing to six, according to the tolerance. At the end of this course the fever disappeared, and has not recurred during the nine months which have since elapsed.

Jessier, Déclat, Hüter, Hirschberg, Aufrecht, Motta, and others, have also employed carbolic acid in the same disease, both by the mouth and hypodermatically; Motta, indeed, preferring it to quinine.—*Centralb. f. d. ges. Therapie*, March, 1886.

Hystero-catalepsy in the Male.—Dr. McLane Hamilton reports an interesting case of this kind in which the paroxysms followed the sudden suspension of large habitual doses of opium (as high as sixteen grains per day) and were caused to cease by firm testicular pressure. Coincident with the pressure, all rigidity relaxed, and consciousness returned.

No cremasteric reflex could be evoked. The case is interesting because of the rarity of hystero-catalepsy in the male, the sudden abandonment of the morphine habit, and the success of the novel therapeutic experiment resorted to. The patient was rather fat, a married man, aged thirty-five years, intellectual, and of good capacity, whose father was an irascible man, given to excessive stimulation. Mother transmitted to him no neuropathic taint.—*St. Louis Medical Review*, March 13, 1886.

Splenic Bruit in Intermittent Fever.—In nine cases of intermittent fever Maissurianz observed in the protuberant spleen an intermittent blowing murmur, probably of vascular origin similar to that observed in Basedow's disease. In one case, after large doses of quinine, the murmur disappeared in three days. In another the sound became more pronounced with the access of fever, and was coincident with increased splenic sensitiveness. In chronic, hard, swollen spleens the sound was never heard. In the only case in which post-mortem examination was obtained, the spleen was very soft and rich in blood.—*Fortschritte d. Medicin*, March 1, 1886.

Communication of Tuberculosis through the Food.—Fischer has made a series of experiments on this subject on rabbits, with the result that he comes to the conclusion that such a method of the conveyance of the tuberculous poison is beyond all doubt. His experiments were made with beaten-up fresh lungs of rabbits which had died of tuberculosis, and later on with such lungs after putrefaction had commenced in them. From his first series the results showed that after the animals had partaken only once of this material (3–8 c.cm.) a typical tuberculosis of the intestinal mucous membrane, of the mesenteric glands, and liver was developed within a period varying from 6–8⅓ weeks. The spleen, omentum, kidneys, pleura, and peritoneum were, on the contrary, never found affected, the part chiefly involved being the intestinal mucous membrane, the extent of this depending on the duration of the experiment and the richness of the tuberculous material in bacilli.

Falk had previously shown that the digestive juices, contrary in this respect to their action on the anthrax bacilli, have little or no effect on the tubercle bacilli, neither killing them nor even weakening them, and Fischer has arrived at a similar conclusion. On the other hand, putrefaction has a most distinct effect on the tuberculous poison; on feeding the animals with putrefactive tuberculous material, either no changes at all were found, or they were slight and limited for the most part to the mesenteric glands and vermiform process, and as the number of bacilli in such material was in no way diminished, the difference in the action could only be ascribed to a weakening of the pathogenic activity of the organisms, brought about by prolonged contact with putrefactive organic substances.—*The Practitioner*, March, 1886.

Pathological Histology of the Semilunar and Cervical Ganglia.—Mr. Hale White, from an examination of one hundred and fifty sections of these ganglia concludes:

1. The typical ganglionic nerve cell is similar to other nerve cells.

2. It is rounder and larger than those of the anterior horns.

3. Many cells have no processes, nucleus, nor nucleolus.

4. They are generally, but not always, wasted in patients who have died of wasting diseases.

5. Pigmentary degeneration is almost universal in the sympathetic ganglia, and may be the cause of some of our undefined and undefinable ailments of little magnitude.

6. Ganglionic pigmentation has as yet no definite significance.

7. Pigmentation of nerve fibres is never found.

8. The quantity of fibrous tissue varied in different specimens and parts of specimens.

9. The superior cervical ganglion is better supplied with bloodvessels than the semilunar, and the vascular arrangement is more constant in the former.

10. In chronic Bright's disease the ganglionic arterioles are thickened.

11. In acute inflammation of the ganglia great numbers of escaped white corpuscles and increase of connective tissue obscure the section.

12. Ganglionic congestion has been found in diabetes and purpura hemorrhagica, and is the only constant pathological lesion.—*Trans. Royal Med.-Chirurg. Soc.*, 1885.

A Novel Anticoagulant.—Prof. Zunz has presented before the Berlin Physiological Society an ingenious method of retarding the coagulation of blood in the course of experiments upon blood-pressure. It had been shown that the cause of the frequent persistent bleeding seen after the application of leeches, is due to the presence of a soluble ferment in the animal. Zunz has found that an aqueous extract of the heads of leeches, injected into the blood stream, not only prevented any interruption of the experiment through coagulation, but in no wise influenced blood-pressure.—*Allg. Wien. med. Zeit.*, Feb. 16, 1886.

Antisyphilitic Fumigations.—Langlebert recommends the following formula as especially useful in secondary laryngeal syphilis:

Pulverized wood charcoal . . .	℥vjss.
Protiodide of mercury . . .	gr. xxx.
Benzoin	gr. xv.

Mix with slightly sweetened water to a paste, and divide into twenty pastilles.—*Rev. de Thérapeutique*, March 1, 1886.

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SATURDAY, MARCH 27, 1886.

THE OPERATIVE TREATMENT OF FRACTURE OF THE PATELLA.

The operative measures proposed for the treatment of fracture of the patella are three: puncture of the capsule of the joint to evacuate the effusion; the tendon-ligature of Volkmann; and suture of the bone. Or they are four, if the use of Malgaigne's hooks be considered an operation, and five, if the method proposed by Morton be employed. It is not long since there was no question as to the proper way in which a fracture of this sort should be treated, and all surgeons used simple external appliances to keep the fragments as nearly in apposition as possible, and were satisfied with obtaining a useful limb. But in 1877 Lister, with the confidence resulting from his experience with the antiseptic method, opened the knee and sewed together the fragments of a recently fractured patella, obtaining firm union and a useful leg. Since then others have followed his example in such numbers that it may be said that this method is one well established, and deserving of serious consideration in deciding upon the treatment most suitable for this kind of injury. Certain enthusiastic surgeons have even argued that this method is the best for general adoption, and would think no more of recommending it to their patients than they would of advising any other simple and successful procedure. On the other hand, conservative surgeons may be said almost wholly to reject it, and to restrict its application to cases which resist simpler methods, or to cases of fractures already communicating with the air.

It seems as if it were not too soon to pronounce a judgment between these two opposite opinions; for there are now accessible a large number of reported cases from the results of which the merits or demerits of this method may be gathered with some degree of certainty. Recently, Dr. Josef Bogdanik, of Biala, has published the report of a case of his own, and accompanied it with a study of this question, "Naht der gebrochenen Kniescheibe" (*Wiener med. Presse*, Dec. 20 and 27, 1885); and Dr. Conrad Brunner, of Zurich, has published a long and elaborate comparison of the simple and operative methods "Ueber Behandlung und Endresultate der Querbrüche der Patella" (*Deutsche Zeitschrift für Chirurgie*, Bd. xxiii. Hefte 1 and 2). The latter paper contains a detailed account of the history of forty-four cases of simple and complicated fracture treated without suture, and statistical tables containing the essential points in regard to ninety cases of fracture treated by the suture, half of them being recent and half old fractures. The paper of Bogdanik contains a table including sixty cases treated by suture. Striking out the duplications in both these papers, we may obtain sixty-four apparently authentic cases on which to found an opinion as to the claims of the operation. Looking over them all, and studying carefully the details of the cases reported by Brunner, treated by the simple method, and followed up for long periods of time, so that the final result could be fairly stated—a thing which is as yet entirely lacking in the history of the operative method—we are led to the conviction that the operation of cutting down upon a fracture of the patella and suturing the fragments is entirely unjustifiable in the great majority of cases. As Brunner points out, there is no real necessity for the operative method, since the simple method gives practically as good results. The true test of the success of either method is the restoration of the function of the leg, and not the securing of bony union. If this be applied, it is found that the great majority of cases of fracture of the patella treated in the old way do very well. It cannot be asserted, and much less can it be proved as yet, that the results of operative interference are any better. Thus far, there seems to be little difference between the merits of the two. But when we consider the dangers attached to them, we find that they are absent in the simple method of treatment, while they are very considerable in the operative method. Thus, in the cases cited we find eight of suppuration of the joint, two in which amputation through the thigh became necessary, nine in which ankylosis took place, and three which ended fatally. With this may be compared the results of the forty-three cases collated by Chauvel, in which severe inflammation of the joint occurred twenty times, secondary amputation was performed once, and death occurred three times.

In view of these facts, we believe that there is no justification for transforming a simple fracture of the

patella into a compound one, in the hope of securing bony union, which does not insure any better functional results than is secured by good ligamentous union, or for the pleasure of saving a certain part of the time usually required for the treatment in the old way.

As the case now stands, we think the operation of suturing the fragments of a broken patella should be reserved for cases in which there is already a free communication with the seat of fracture, and for such badly united fractures and such useless limbs as are plainly beyond relief by simpler methods. Certainly the sentiment of American surgeons, founded upon a large and fortunate experience in the treatment of fracture of the patella, does not incline them to follow the enthusiastic devotees of Listerism, in regarding opening the knee-joint as suitable to many cases of this injury.

"UNCONSCIOUS IMPREGNATION."

Under the above title one of our contemporaries gives an account of a case recently tried in Manchester. A dentist was charged with having committed a rape upon one of his patients, an unmarried girl, while she was under the influence of nitrous oxide. It is stated that "two questions arise in connection with the case of the highest import. Is it possible for intercourse with a virgin to take place during the short period of insensibility and semiconsciousness following the administration of nitrous oxide gas? We take it that, although possible, it is in the highest degree improbable. But there can be no doubt that, granted the accomplishment of the act, the answer to the query, Can unconscious impregnation happen under such conditions? must be answered in the affirmative." So much for the journalist's statements.

Now we venture to say that impregnation is always unconscious, for the interval between insemination and conception, the latter is a synonym for impregnation, is an unknown period—it may be hours, or even days, and "it cometh not with observation." No one claims to know the actual duration of pregnancy in the human female, simply because the first term is an unknown quantity—an uncertain time; we know when the pregnancy ends—though in regard to this law and physiology may assert a difference, the former saying that the end is with the birth of the child, while the latter might, in consequence of essential changes in conditions, find this ending in the beginning of labor—but we do not know, and probably never will know, the precise time when it begins, when the spermatozoid and ovule actually unite to form the new being, and thus accomplish impregnation. Necessarily the female is unconscious of the time when this union occurs; if she were, obstetricians would know how long human pregnancy lasts.

Passing by, then, this misapplication of the words unconscious impregnation, let us turn for a moment to the question intended to be presented as to coition occurring without a woman being conscious of it. The subject is briefly considered by Vibert in the thirty-ninth volume of the *Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques*, which has just been issued. Vibert states that this violation can be accomplished upon a girl or a woman in a state of nervous sleep, of catalepsy, of lethargy, of induced or spontaneous somnambulism. He asserts that the statement is placed beyond all question from what we know in regard to the total or partial insensibility which is one of the manifestations of these pathological states, and by the docility which is shown by certain persons toward those who have made them sleep. He quotes a case where a dentist had intercourse with a girl twenty years old, who came to his rooms for professional treatment with her mother; the girl declared that she lost her consciousness each time, and upon coming to herself she felt pains in her genital organs without knowing what had occurred; a pregnancy resulted. The medical inquest proved that no chloroform or other anæsthetic had been used, but that the complainant presented various hysterical manifestations, and that it was easy to make her sleep by simply closing her eyelids. A similar case is quoted in Tardieu's work, where a mesmerizer had intercourse with a girl of eighteen; she was unconscious of what happened during her sleep. Although in each case a conviction occurred, the guilt of the dentist does not seem quite clear, as the crime was always committed while the mother was in the room, and it seems in the highest degree improbable that she would not know it.

Vibert, in accordance with other authorities in medical jurisprudence, admits that in a woman having had frequent sexual intercourse, coition may occur when she is in natural sleep without her being wakened at first, but that this is impossible in the virgin. The former statement can only be very exceptionally true, and the sleep must be quite profound.

Drunkenness, the effect of various narcotic medicines, anæsthetics, such as ether, chloroform, nitrous oxide, may "also permit a rape, the victim being incapable of defending herself, or not having any consciousness of the act committed upon her." But if the subject has been drunk at the time of the alleged crime, or if a narcotic has been given to the degree of abolishing will and consciousness, she remains for some time afterward unconscious. Founding his opinion upon the experiments of Dolbeau, who proved that it was almost impossible to administer chloroform by surprise to a person in natural sleep, Vibert states that it is only when the anæsthetic has been administered by a physician, or other competent person, that a rape could be committed.

Another question that is discussed is, whether a girl may be so overcome by terror, for example, or other emotion, that she can make no outcry, and is powerless to resist the ravisher? He suggests as facilitating decision in a given case, an inquiry as to whether the alleged victim is liable in her ordinary state of health to attacks of syncope, or loss of consciousness, and as to whether the details given by her of the violence and the sensations she experienced, are not inconsistent with a loss of consciousness, and an inability to resist. Now we think injustice may result from this view. Imagine—imagination is hardly necessary, for almost every week our newspapers tell us of such crimes—a frail, delicate girl or woman seized by some brutal man insane with lust, and having ten times her strength; it may be on a lonely road, in the dusk of the evening, and far from human help. She may be speechless and paralyzed with great and sudden fear, and yet conscious of every step in the horrid crime.

While, then, we believe it is an error to raise the question of unconscious impregnation, since the act of impregnation is never made known to the consciousness, it certainly must be admitted that the insemination which has caused the pregnancy may occur in quite exceptional conditions without the female knowing it. A familiar passage in King Lear indicates that both male and female may be only semi-conscious during fruitful intercourse, and that the products of such intercourse take a special character from such conditions.

". . . . . take
More composition and fierce quality
Than doth, within a dull, stale, tired bed,
Go to the anatomy of a whole tribe of fops,
Got 'tween asleep and wake!"

THE TREATMENT OF ANEURISM BY THE INTRODUCTION OF FILIFORM MATERIAL.

In The Medical News for December 12, 1885, we called attention to the subject of aneurisms of the aorta, and incidentally to the treatment of aneurisms by the introduction of foreign substances. The occasion of this article was a case of aneurism of the abdominal aorta treated by Loreta, in 1884, by the introduction of about two yards of silvered copper wire, after opening the abdomen. A new instance of the introduction of wire for the treatment of aneurism has just occurred in London. On February 23, Dr. Cayley reported to the Royal Medical and Chirurgical Society (*British Medical Journal*, Feb. 27, 1886) the case of a man forty-eight years old, with an aneurism of the ascending part of the arch of the aorta. After unsuccessful medicinal treatment, on June 24, 1885, Mr. Hulke introduced into the sac, through a fine canula, forty feet of steel wire, which had been previously coiled on a mandril half an inch in diameter. This was followed by no untoward symptoms, and the upper portion of the aneurism was completely consolidated. About two months later, there were signs of the extension of the aneurism within the thorax, and on September 10th, Mr. Gould passed a canula down behind the sternum into the aneurism and introduced thirty-four feet nine inches of wire. This caused no constitutional disturbance, but it afforded no relief of the symptoms of aneurism, and the patient died in ten days. At the autopsy it was found that the upper part of the aneurism was completely filled with clot, in which the wire was embedded. The lower portion was not affected by the treatment. In the discussion which followed the report of this case Mr. Barwell spoke of this as the ninth reported case of the introduction of wire, horsehair, or catgut, none of the patients having been definitely cured. The general opinion seemed to be that such a measure must be regarded as a last resort. Mr. Holmes expressed an opinion similar to that which we expressed in our editorial of last year, in favor of the employment of a less rigid material than wire; instancing catgut and horsehair, of which he thought the latter the better.

The result of the case reported by Dr. Cayley, we think, justifies the hope that something may yet be accomplished in the treatment of aneurisms which resist medicinal treatment, and which are not amenable to compression or ligation. Such cases certainly ought not to be left to die unrelieved, and by a judicious following up of the indications already accumulated the best method and best material for the obliteration of the cavity of the sac will doubtless be discovered. For the present, it seems to us that it would be well to repeat the use of horsehair, which—contrary to the apprehensions of Loreta and to the assertion of Mr. Hulke—*can* be made absolutely aseptic.

THE MISNAMED PORRO OPERATION AFTER RUPTURED UTERUS.

We have a very decided objection to calling an operation by the name of *Porro* in which a Cæsarean section does not precede the utero-ovarian amputation, and in which there is no possibility of saving the fœtus. As Dr. Oscar Prevôt, of Moscow, first performed this special ablation of the uterus, on November 22, 1878, it is proper that it should bear his name, for two reasons, viz.: It is far more fatal than the true Porro method, the results thus far being one woman saved out of eight, and eight children lost, and it only serves to increase the mortality of the Porro list when the two records are combined.

We cannot see that this method of treating cases of uterine rupture can be of any advantage, in view of the fact that laparotomy after uterine laceration has been less fatal in the United States and many parts of Europe than the old Cæsarean operation—

in fact, in our own country, saving nearly one-half of the women. Besides, we are not ready to unsex a woman who has been so unfortunate as to rupture her uterus, when she can be better cured without, and especially when she has a normal pelvis and may bear children without future risk if her uterus be well closed by sutures.

DR. SLAWJANSKY, of St. Petersburg, reports in the *Annales de Gynecologie*, for February, 1886, the case of a woman thirty-seven years old, and pregnant for the ninth time. When within a week of her full term her uterus was lacerated transversely by an accident, and the fœtus escaped into the abdominal cavity. The rent was from side to side in the superior third, and through it the viscus was inverted with the placenta attached, as in the Miller case reported in the *American Journal of the Medical Sciences*, for July, 1885, p. 181. We cannot see that this condition necessitated the removal of the uterus, which was done in this case, for the restoration of the parts in Dr. Miller's case enabled him to deliver the placenta without hemorrhage, the mouths of the vessels being completely shut up by the contraction which followed upon the organ being replaced. The fact that Dr. Slawjansky's patient escaped death does not justify the method, for many more than one out of eight have been saved under Winckel, Hœbecke and others in Europe, without the unsexing process. If anything would justify the Prevôt operation it would be the existence of pelvic deformity, as found in the four Winckel cases, three of which recovered. As six out of nine women were saved after laceration of the pregnant uterus by the horn of an ox, we cannot see the necessity for the extreme measure advocated by Dr. Slawjansky. Better by far is it to rely upon closing the uterus by sutures, cleansing out the abdomen, and antiseptic treatment.

SOCIETY PROCEEDINGS.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, February 3, 1886.

THE PRESIDENT, S. WEIR MITCHELL, M.D., IN THE CHAIR.

DR. CHARLES W. DULLES read a paper on

THE MECHANISM OF INDIRECT FRACTURES OF THE SKULL.

He began with a historical review of the subject of fractures of the skull and traced the references to indirect fractures down from the time of Hippocrates to the present day. Considerable space was devoted to studying the observations, experiments, and theories of the French investigators of the last century—Grima, Saucerotte, Sabourant and Chopart, and Corning, down to this century, the views of Sir Charles Bell and Mr. (afterward Sir) Benjamin Brodie were given. Aran's experiments and conclusions were presented and commented upon, as well as the theories of Hilton, von Bruns, Prescott Hewett, Chauvel, Schwartz, and Félizet, and others, among whom the most prominent names were those of Bergmann, Messerer, von Wahl, and Greder.

The speaker then considered in detail the elastic properties of the skull, and explained the mechanism by which, in a hollow case, the shape of which has a general resemblance to that of a spheroid or ellipsoid, a compressing force is converted into a disruptive force. When an elastic spheroid is compressed in any diameter, all the diameters lying at right angles to this—that is, in any plane parallel to that of the equator—must be elongated. The experiment of pressing on the convex side of a bow, the ends of which rest on the ground, will illustrate what takes place in every chord of every arc that is depressed. It is equally clear that the elongation of the diameters lying in any plane will elongate the circumference of this plane, because a circumference of longer radius is longer than a circumference of shorter radius. As a result, the meridians passing from pole to pole will be separated in a direct ratio to the extension of the different diameters and circumferences. This operation is illustrated whenever an umbrella is raised. As a consequence of the separation of the meridians, particles which before occupied a certain space between two meridians, will be compelled to separate in order to occupy the increased space between them. In every such case there will be a struggle between the cohesion of the particles and the disruptive force due to the separation of the meridians, and whenever the disruptive force overpowers the cohesion of the particles lying along and between two of the meridians, a solution of continuity will take place. The disruptive force will be at a maximum at the equator, but it will be found in different proportions in every line parallel to the equator. In a perfect sphere with homogeneous walls such a solution of continuity would naturally begin at the geometrical equator and extend equally and simultaneously in opposite directions in a meridional line toward the poles; but in a spheroid or ellipsoid not regular in shape, and with walls varying in strength in different parts, the result would be modified by these variations. This is exactly what we find in the case of the skull, which, while bearing a certain resemblance to an ellipsoid, does so in only a modified way, and can only be expected to exemplify the law just stated subject to modifications due to its own peculiarities.

He next spoke of the anatomical peculiarities of the skull, and, after mentioning the thinnest portions of the different bones comprising it, he pointed out some peculiarities in the temporal bones, the importance of which he had not found sufficiently dwelt upon. He spoke of the thinness over the cotyloid depression, and of the fact that the mastoid portion is sometimes occupied by such large open spaces as materially to weaken its walls. The petrous portion does not, on section, present everywhere that solid and rocky appearance to which it owes its name, and which it only partly deserves. The roof of the external auditory meatus is sometimes very thin, in a line parallel to and anterior to the superior ridge of the bone. The floor of this canal is also comparatively thin. The plate of vitreous which covers the anterior inclined plane of the bone is

often a mere shell over the promontory above the inferior semicircular canal, and further back, in front of the groove for the superior petrosal sinus, it overlies a mass of honeycombed cancellated tissue which communicates with the large cells of the mastoid process. These facts explain the many fractures which are found to run parallel to the crest of this bone, and which have often been wondered at. In like manner, the curious course which a fracture sometimes takes at right angles to the main axis of the petrous bone may be understood when we study the channels and excavations belonging to the middle and internal ear, the internal auditory meatus, the carotid canal, the groove for the inferior petrosal sinus, and the jugular foramen.

Again, in regard to the posterior clinoid processes, it was long a matter unexplained that violence done to the skull was followed by no fracture, except one breaking off the posterior clinoid processes of the sphenoid bone. But the explanation is easy enough if we accept the "bursting theory," and recognize the fact that the tentorium cerebelli is attached in front to these processes, and that, when the long diameter of the skull is increased, the tense tentorium holds back with an unyielding strain, and tears these processes from their attachments to the rest of the bone. In this we have both an explanation of the mechanism of these fractures and a confirmation of the "bursting theory" of indirect fractures of the skull.

Attention was called to the peculiar conditions of the basi-sphenoid and petrous bones. These bones are never united by bony union or close-fitting dentations, like the other bones of the skull. Their adjacent surfaces are simply applied against each other and united by a membranous or ligamentous band. The plane in which these bones articulate is such that the basi-sphenoid is placed like a wedge between the apices of the two petrous bones. As a consequence, any force, like a blow on the vertex driving the cranium down upon the spinal column, or a fall upon the buttocks or feet, driving the spinal column up against the cranium, will have the effect of forcing the wedge-shaped basi-sphenoid upward and forward between the two rigid petrous bones, with the frequent result of knocking off one or both of the apices of the latter. This form of fracture is another which has excited much surprise and some fanciful explanations; but, in the light of what has just been stated, it seemed to him to be quite comprehensible.

Finally, the speaker said he had been struck by the fact that certain peculiar fractures of the base of the skull seem to have been due to support of a segment of the occipital bone furnished by the inclination upward and outward of the articular surfaces of the atlas, which embrace the condyles of the occipital bone and restrain it from rupture to such an extent that a fissure will pass on both sides of the protected region rather than through it. This form of fracture he illustrated by a beautiful specimen taken from the Mütter Museum of the College of Physicians.

The speaker next discussed the architectonic peculiarities of the skull, and the influence of the soft parts and contents upon fractures.

As to the contents of the skull, he said that Fabricius ab Aquapendente attributed fractures by counterstroke to the effort of the air, which he supposed the skull to contain, to escape from its cavity, and called attention to the fact that the skull is filled with a much more incompressible material than air. In fact, the brain and its membranes, with the surrounding fluid, completely fill the skull with one of the most incompressible materials of which we have any knowledge. Under the influence of a blow, this material tends to increase the disruptive force, according to the well-known laws of hydrostatics. The statements often made, which affirm or imply that the skull and its contents can be compared to a water-bed, are utterly erroneous. The fluid contained in the cranium, in a state of health, is far too little to justify any such comparison. Besides which, it is contained in a firm, unyielding case; while it is indispensable to a water-bed that its walls shall be soft and yielding. It has also been intimated—and so able a man as Mr. Hilton thought he had demonstrated—that displacement of the cerebro-spinal fluid could be regarded as a protective against injury when the skull was struck. Mr. Hilton's experiment was not free from an important source of error, and one who studies carefully the anatomical peculiarities of the cerebro-spinal axis must see, I think, that there is only one way for compensatory diminution in the contents of the skull to take place, namely, by displacement of its contained blood through its natural channels. This displacement can and does take place when time is afforded for the process, as in the case of a growing tumor; but the rapidity with which a blow tends to diminish the capacity of the cranium far outstrips the speed with which the blood can escape; so that, as a matter of fact, the skull and its contents may be regarded as the very opposite of a water-bed, and more like a cask filled with fluid which may burst under a sudden increase of the pressure upon the inside of its walls. This fact is established not only by a correct knowledge of the physical conditions of the cerebro-spinal axis, but also by experiment and observation.

The next division of the subject was a study of 119 cases of fracture, the details of which the speaker thought sufficient to justify their use in testing the correctness of the bursting theory. Drawings were shown of each one of these cases, and one in which the lines of 100 fractures had been placed upon a single diagram. This diagram showed that the parts which Félizet assumed to have peculiar strength—the petrous bones and the basilar portions of the occipital—seem, on the contrary, to be the very seats of election for fractures of the base.

The analysis of these 119 cases showed that 111 present fissures which correspond to what might be expected from an application of the principles of the "bursting theory," and only eight seem to contradict it—a result which seems to establish this theory by the best test which we can apply to it, so that it appears to rest upon a firm tripod of reasoning, experiment, and clinical observation.

The speaker did not overlook the fact that there are fractures which cannot be accounted for by the bursting theory. He spoke particularly of some in which the force applied is so great, and acts in such a manner, that the skull is crushed so as to hide any evidence of the play of its elastic properties, the fracture being of a comminuted sort; and of others in which one segment of the skull seems to be shoved over the other by forces

of pressure and counter-pressure which require some study before their mode of operation can be understood. In this connection he spoke of the importance of learning the position which the skull held in relation to the spinal column, or to any body exerting counter-pressure, and of the counter-pressure which is caused by the simple *vis inertiæ* of the skull and its contents.

He closed by expressing the conviction that the supreme law governing the production of indirect fractures, is that which depends upon the fact that the skull is practically a hollow elastic case, approximately oval in shape, and which may be briefly formulated as follows: When a sufficient force is applied to any curvilinear part of the skull, if this part do not give way immediately, the axis of the skull lying in the same line as that of the applied force is shortened; all the axes lying in planes at right angles to this line are correspondingly lengthened, with a proportional lengthening of their circumferences, and separation of their meridians; so that the direct depressing force is converted into an indirect disruptive force acting at right angles to the direction of the former. The effect is to produce a fissure, or fissures, which will have a general meridional direction.

The application of this law is subject to certain modifications due to the anatomical and architectonic peculiarities of the skull, its coverings and contents, and to certain exceptions due to the amount and velocity of the force applied as well as to the coming into play of peculiar counter-forces.

DR. AGNEW could not agree with Dr. Dulles as to the mode of fracture; the elasticity of the skull is too insignificant. He still held to the old vibratory theory. He satisfied himself of the correctness of this by experimenting with ivory balls, suspended in such a manner as to touch different parts of the skull, and watching the effect on these balls when the cranium was struck. Fracture of the skull, in the vast majority of instances —when the force is concentrated on a very limited surface—occurs at the point of impact. The force which gives rise to fractures at the base is usually a diffused one, and if applied at the vault of the skull travels to the base by the shortest route, the vibrations concentrating or focusing on certain fossæ in nearest relation with the seat of the applied violence.

DR. PACKARD thought that there were two points not mentioned by Dr. Dulles which could hardly be left out of the account in considering the subject of these fractures. One is the direction of the bony fibres—the intimate structure of the bones, as distinct from their mere shape. The other is the momentum of the fracturing force. Some ten years ago he reported a case in which a man was struck by a locomotive moving at such a speed that he was carried along in front of it for a distance of forty feet before he was flung over to the other track, receiving, among other instantly fatal injuries, a fracture which completely separated his skull into two portions, an anterior and a posterior. Between such terrific violence as this and the blows or falls which are the usual causes of fracture of the skull, there are, of course, innumerable gradations, with corresponding influences on the lesions produced.

DR. DULLES said that it would not be possible to prepare a paper of the kind which he had presented in such a way as to meet in advance all the objections which might be raised in regard to it; neither would it be possible in the time devoted to discussion to answer all such objections. He would only say briefly that all that is claimed for the "bursting theory" is, that it seems to account for a very large number of indirect fractures. Experience alone can determine the reliability of any theory, and, while he had become convinced of the correctness of this one, time will decide the matter.

In answer to an objection raised by Dr. Formad, he said that it was not really an objection, but rather supports the "bursting theory." The fractures passing horizontally, of which he spoke, are just as much meridional as though they passed vertically. He showed on a skull how any line passing round the surface in the shortest direction from pole to pole—that is, from the point of impact to the antipodal point, is meridional, and the line passing horizontally is as much meridional as any.

In regard to a case about which Dr. Formad had asked a question, he said that he could not recall a single instance of the many he had investigated, in which a stellate fracture was not a direct fracture; and he believed such an appearance to be an indication that the fracture was caused by violence applied at that very spot. This violence, of course, might be due to a blow on the point where the fracture appears, or to a fall in which the head struck some resisting body at this point.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, March 8, 1886.

THE VICE-PRESIDENT, LEWIS A. STIMSON, M.D., IN THE CHAIR.

NECROSIS OF SHAFT AND EPIPHYSES OF TIBIA CURED BY CUTANEOUS IMPLANTATION ACCORDING TO NEUBER.

DR. A. G. GERSTER presented a boy, ten years of age, who came under his care as a patient at the Mount Sinai Hospital six months ago, with total necrosis of the shaft of the tibia, for which an operation was performed by making a longitudinal incision and chiselling off the top of the involucrum to such an extent as to permit him to remove in one piece almost the entire shaft of the bone. At the same time, it was found that there were several disseminated necrotic foci in the head of the tibia and lower epiphyses, which were removed principally by the gouge. In the operation, the posterior gutter-shaped involucrum broke into six or seven small fragments, and therefore the implantation of the edges of the skin incision could not be done as usual by nailing them to the bottom of the wound. He was, therefore, obliged to introduce four sutures through the edges of the incision, and then thrust the needle through the entire thickness of the leg and tie the loops on the posterior aspect of the leg. The groove formed by the inturned edges of the skin was very deep at that time, but the newly formed shaft of the tibia has raised the cicatrix so that now it is almost level with the normal outline of the limb. Although the new formation and the healing of the fractures went on without disturbance, it was noticed that in the upper and lower angles of the incision, where drainage tubes had been placed, there was a continuous secretion, so that five or six weeks after the operation revision of the upper and lower ends of the bone was performed, and then it was ascertained

that the cavities formed at the first operation, particularly at the head of the tibia, did not fill up with newly formed bone, but that the walls of the cavity produced deciduous granulations which, from time to time, went on to ulceration. Three or four revisions of the lower end of the bone were made, and finally resulted in occlusion of the cavity situated in the lower epiphysis. The upper epiphysis, however, remained rebellious about five and a half months, and two weeks ago Dr. Gerster made a tongue-shaped flap, the base of which was below the patella, corresponding to the spine of the head of the tibia, and reflected that, together with the periosteum and the insertion of the patellar ligament, exposed the capsule of the joint in order to be sure not to open it in chiselling off the roof of the cavity. Then the roof of the cavity was chiselled away more or less of its sclerosed walls, until, finally, bone was reached which bled freely, and he then turned in the flap which he had formerly raised and nailed it to the remnant of the posterior shell of the head of the tibia. An antiseptic dressing was applied, which was changed for the first time three days ago, when it was found that the flap had attached itself nicely to the bottom of the wound. The lower portions of the wound, which could not receive a cutaneous covering, were healing by granulation, and it was fair to expect that a large part of them would be ultimately covered by skin.

The object of this operation was to compel healing of the deepest portion of the cavity where retention of secretion always took place. He expects in this way to conclude the case satisfactorily.

In making an operation so near the knee-joint, it is most essential to expose the capsule of the joint first, and when this can be distinctly seen, the danger of opening into the joint can be safely avoided.

PES PLANO-VALGUS CURED BY RESECTION OF A WEDGE-SHAPED PORTION OF THE TARSUS; CONSECUTIVE PARALYSIS OF MUSCULO-SPIRAL NERVE DUE TO THE USE OF CRUTCHES; DISSECTION OF THE NERVE, FOUND TO BE ADHERENT TO AN OLD CALLUS FROM COMMINUTED FRACTURE OF THE HUMERUS.

Dr. Gerster also presented a young man, an oyster opener by occupation, who was obliged to do his work while standing. He entered the Mount Sinai Hospital with marked plano-valgus, walking upon the inner edge of the foot. The head of the astragalus was protruded to such an extent that the skin over it became frequently irritated, and threatened ulceration. The outer edge of the foot looked almost directly upward. In this case he removed a wedge-shaped piece of bone, containing a portion of the calcaneum, astragalus, and scaphoid, and then the edges of this wedge-shaped defect were united by three or four catgut sutures, and a suitable dressing fixed the surfaces of the bones in contact. To keep the bony surfaces in contact was rather difficult, but it was accomplished by the use of an apparatus similar to that which had been recommended some time ago by Dr. Detmold, the principle being that a board was attached to the sole of the foot, and to this, at right angles, a second board, which acts as a lever, and is brought up and tied to the leg in such a way that the sole of the foot is inverted, and the result was very satisfactory.

This case presented another interesting aspect. During convalescence the patient first attempted to walk, distinct paralysis of the muscles presided over by the musculo-spiral nerve was noticed, which increased from day to day. Dr. Gerster was then informed by the patient that he had formerly sustained a compound fracture of the humerus. On examination it could be seen that the outline of the humerus was very irregular and very much thickened, and that there were a number of ridge-shaped prominences which indicated that the fracture was very extensive and probably comminuted. The result with regard to the fracture itself was very good, but the musculo-spiral nerve in the cure had become attached to the callus, and when the patient commenced to make his first attempt at walking by the aid of crutches after the operation on his foot, the ulnar and median nerves yielded to the stretching by the pressure of the crutch, but the musculo-spiral, being attached along the posterior aspect of the limb, could not so yield and thereby was subjected to a great amount of continuous irritation, resulting in this evidently traumatic paralysis. The paralysis grew more and more intense, although walking upon crutches was stopped. This complication induced him to cut down upon the nerve and remove the portion of callus which compressed it and which he found to be a shallow gutter of newly formed bone, and at the same time he found that the portion of nerve about two inches in length embedded in the gutter was hyperæmic and thickened, so that when it was lifted out it was distinctly though slightly spindle-shaped. The wound healed by first intention, and under proper electrical treatment, using first galvanism and then faradism, which preserved the size of the muscles tolerably well, the function of the nerve had recommenced and continued to improve daily, so much so that the patient is now able to extend the wrist as well as the fingers. Although cases like this had finally improved and got well without operative treatment, he had no doubt that the operation in this case hastened the improvement in the symptoms, principally by improving the circulation in the affected parts.

The deformity of the foot dated back to childhood, but the patient had noticed that since he was obliged to earn his living by doing work while standing, the inflammatory part of the trouble became prominent, and with it the extreme deformity.

FLAP TRANSPLANTATION ACCORDING TO MAAS, OF WURZBURG, FOR CIRCULAR ULCER AND CICATRIX OF LEG.

Dr. Gerster presented another patient, a boy of eight years, upon whom he had performed transplantation according to the plan of Mass, of Würzburg, a plan which he should deem practicable in a number of cases. The child had sustained a compound fracture of the leg about one year ago, and also at the same time a laceration of the cheek which resulted in necrosis of a portion of the angle of the mouth, and finally shortening of the mouth, especially of the angle. He found when the patient was admitted to the hospital that there was an extensive loss of integument corresponding to the lower third of the leg, the lesion being circular in outline; that the anterior portion of this surface was marked by an ill-conditioned ulcer, which grew larger and smaller according to the variation of external influences. Finally the patient was admitted to the hospital, and he had no doubt that the ulcer would not heal; in case it should do so by granulation, the

contraction caused by a circular cicatrix of great width would interfere with circulation to such an extent as to endanger the integrity of the foot. He then performed an operation by taking a flap from the posterior aspect of the other leg, four inches long and two inches wide, with its base upward, which was left adherent. Before beginning the operation each leg was embedded in a plaster-of-Paris bandage. The left leg was embedded in plaster of Paris only after dissection of the flap up to its base, the flap remaining outside above the dressing which was carried over the limb. The two legs with their plaster-of-Paris splints were then brought into suitable apposition, so that the posterior flap could be placed upon the defect on the opposite leg, and in this position both legs were secured with an additional arrangement of plaster of Paris enclosing all, and then the child was put to bed and allowed considerable freedom so far as this apparatus would permit him, because it was quite sure that no disturbance of the flap could occur. Dampened sponges were placed in the vicinity of the flap, and the region of the flap was invested in several layers of rubber tissue which was removed once or twice a day, but there was no dressing proper applied to the wound. About one and a half inches of the end of the flap necrosed, but the rest becoming adherent, the cicatrix was covered, and Dr. Gerster believed that now the danger from cicatricial constriction had been removed. A fortnight after the first operation, the pedicle being cut, the plaster-of-Paris bandages were removed.

The ulcer was prepared for the flap by cutting away the granulations, and the edge of the flap was not in contact with the edge of the ulcer.

DR. SANDS remarked, concerning Dr. Gerster's case, that a slighter operation on the foot would probably not have been of avail. He had performed Ogston's operation, which consists in removing the articular surfaces of the scaphoid and astragalus, placing these surfaces together in the natural position, and securing them by means of two ivory pegs. In this way he had been able to restore the arch of the foot; union by first intention occurred, and the patient was in much better condition than before the operation.

DR. MCBURNEY asked, with regard to the constricting cicatrix, whether Dr. Gerster thought the flap would prevent the effects of this constriction, as it seemed to him that there still remained a rather tight cicatricial surface.

DR. GERSTER said that the constriction which was observed when the patient was admitted to the hospital was a great deal more pronounced than it is at the present time, especially on the posterior aspect of the limb. The boy was unable to walk with as much comfort as now; the constriction has decidedly diminished. Whether this is due to the fact that the cicatrix has softened, or whether the improvement is due to increased nutrition of the dependent parts of the leg, he was unable to say. He would also add that the flap which has been transplanted can be used for further operative purposes, and can be divided into one, two, or three parts, meeting further indications if there is any special disturbance in the direction referred to.

DR. LANGE asked whether it is probable that the circular constriction from the cicatrix will endanger the nutrition of the limb. He did not know where there exists any observation that the presence of a superficial circular cicatrix has interfered dangerously with the nutrition of the foot.

DR. GERSTER said that when he was a student, in 1868, he saw in the clinic of Dumreicher the case of an old woman—a radical difference, of course, in the patients—who had a very extensive circular ulcer, apparently an ulceration of the cicatrix, which was situated in about the same region as in this case. In that patient, however, there was also arterial stenosis, and gangrene of the foot supervened. He would not say that the gangrene was caused by the presence of the cicatrix alone, as it is well known that gangrene occurs in the limbs of old people without the presence of a circular cicatrix, but the circular cicatrix being present in a patient with defective arterial supply, of course will increase the chances of the occurrence of gangrene. He did not believe that in a case of this kind necrosis of the foot will result, but the disturbance of function due to malnutrition will certainly be very pronounced.

DR. BRIDDON had had one experience, in a child of about the same age as this boy, who was very severely burned, and the ulcer remained open for about eighteen months. The entire integument of the forearm except that immediately below the elbow-joint was destroyed, but at this point there was a tongue of tissue left which, in the formation of a cicatrix, was drawn down, so that it reached to within an inch and a half of the wrist, and the circular constriction of the cicatrix was such as functionally to derange entirely the wrist and fingers. The condition of the hand was that of constant œdema and lessened vitality, and he had proposed an operation somewhat similar to that performed by Dr. Gerster, namely, the transplantation of a flap from the anterior wall of the thorax. So far as he was able to follow the case, the functional disablement was pretty nearly complete, and probably an operation of this character would have restored the limb to its usefulness.

DR. GERSTER believed that undoubtedly if the end of the flap had not necrosed it would have covered one side of the tendo-Achillis at least, which would have been of very great advantage.

ORBITAL ANEURISM.

DR. MCBURNEY presented a young man who illustrated the not very common affection of orbital aneurism, and who gave the history that about one year ago there was nothing noticeable about the eye except a very small swelling which did not give him any special inconvenience. Last spring he received a very severe blow from a base-ball, and from that time the swelling has increased, and recently he had a fall and struck in this region, and he thinks that it increased more rapidly since that accident.

There is a general pulsating tumor involving the tissues about the eye, especially the upper lid and brow. The larger vessels can be felt pulsating distinctly. A careful compression of the carotid artery cuts off all pulsation. The retinal vessels, as well as the external, were convoluted and also pulsating. Vision was apparently normal. A distinct bruit could be heard over the mass. There was also a distinct protrusion of the eyeball.

DR. SANDS thought it very difficult to say, without further investigation, what the exact nature of the difficulty was in Dr. McBurney's case. The patient gave evi-

dence of the development of a tumor from the inner aspect of the orbit, but at the same time he gives the history of an injury, and exhibits an arterio-venous murmur. It is unusual to find true aneurismal tumors in the orbit. He once treated such a case by ligating the common carotid artery, and subsequently either Dr. Agnew or Dr. Knapp removed the globe of the eye, and the patient was relieved but not cured. The next operation was that for removal of the aneurism from the orbit, which was accomplished by Dr. Knapp by cutting it out; there was no bleeding.

In Dr. McBurney's case, he would tie the right common carotid, and, inasmuch as pressure upon the right carotid removes pulsation, he would expect good results from that operation, as, indeed, has generally been observed.

Dr. Briddon recalled a case of this character which was operated upon by Dr. Buck, and in which the common carotid was tied, but without benefit. The supra-orbital was then ligated, but without permanent relief. The pulsation then seemed to be in the angular artery, which was tied, and the pulsation ceased, and it did not return. Dr. Briddon has tied the common carotid in one case for a pulsating tumor similar to that seen in Dr. McBurney's case. In that instance, ligation of the artery produced no effect upon the size of the pulsating tumor. The woman died on the thirteenth day—was found dead in bed. Precisely what the condition was which preceded death, he was not able to say. Examination of the orbit after death detected absolutely nothing.

Dr. Gerster had heard Dr. Knapp relate the case referred to by Dr. Sands, but he had never heard a satisfactory explanation as to why bleeding does not follow the cutting of the pedicle of the tumor which contains a large vessel that is left open.

Dr. Sands said it was quite apparent that the large vessel had expanded into a sac, and that when this sac was opened, although the bleeding was exceedingly profuse, so much so that he thought the patient would bleed to death, the vessel retracted within the foramen and the hemorrhage ceased.

Dr. Gerster suggested that if the periosteum is used as a capsule or involucrum to the aneurismal tumor, and is peeled off from the bones forming the orbit, removal of such a tumor can be effected pretty easily, provided the periosteum and bones have not become involved in the aneurism.

Dr. Sands asked Dr. McBurney what operation he intended to perform.

Dr. McBurney said he intended to tie the carotid, and also some of the dilated vessels which pulsated so distinctly, his fear being that if they are not ligated some recurrent supply will take place which possibly might refill the tumor.

Dr. George A. Peters recollected Dr. Buck's case, referred to by Briddon, in which ligature of the carotid artery did not cure; and, finally, cure was effected by ligating the angular artery. What the subsequent history of the case was, he did not know.

Dr. Lange said the impression given on palpation was that the tumor in Dr. McBurney's case was a mass of cavernous tissue, and the question arose whether it was to be regarded as an aneurism or pulsating cavernous tumor.

Dr. Sands said that he tied the carotid artery several years ago in the case of a tumor resembling this somewhat, although it was more plainly recognized as being a pulsating sarcoma. Of course a permanent cure was not effected, although the patient was benefited by the operation.

Dr. A. G. Gerster then read a paper on

SPONTANEOUS PHLEBACTERIEKTASIA OF THE FOOT.

(See page 321.)

Dr. Sands asked Dr. Gerster whether in a similar case he would dare to resort to similar practice, as the double arterial operation can rarely be done without destroying the limb. The simultaneous, or the rapidly succeeding ligation of the superficial femoral and the iliac vessels suddenly compels the circulation to take place through two sets of collaterals; therefore, gangrene is likely to follow. Erichsen has stated that, under such circumstances, gangrene is inevitable; but that it does not invariably occur, Dr. Sands had learned from a case in Bellevue Hospital, in which Dr. Stephen Smith successively ligated several of the main arteries of the lower limb, and yet no bad results followed.

Dr. Gerster said that as a rule he should always prefer to amputute in such cases, and that he would not perform the operation which he performed in this case. In this instance deligation of the vessels was all there was left to be done, for the parents would not listen to amputation, yet some operative interference must be instituted to remove the danger from hemorrhage. He would prefer, under such circumstances, to amputate; but under exactly the same external circumstances he should perform the same operation again.

THE CHICAGO GYNECOLOGICAL SOCIETY.

Stated Meeting, February 19, 1886.

The President, Daniel T. Nelson, M.D., in the Chair.

Dr. A. Reeves Jackson read a paper on

LAPAROTOMY FOR PELVIC ABSCESS.

He stated that at the December meeting a discussion arose upon the subject of pelvic abscess and its treatment. It was based upon the report of a case by Dr. H. T. Byford, which had been treated by favoring discharge of the pus by way of the rectum, and the placing within the abscess cavity a portion of sulphate of copper to promote granulation. The discussion seemed unfinished, and was withal of so interesting a character, that he thought it well to reopen it by the relation of the following case. Whether the operation performed in the treatment of the case should be termed a laparotomy will depend upon what significance is attached to the term. Upon this point opinions will doubtless differ.

If we understand by the word laparotomy, the opening of the abdominal cavity in its largest sense, the term is here correctly used; but if, on the other hand, we mean the opening of the abdomen for the relief of *an encysted intraperitoneal abscess non-adherent to the abdominal wall*, the term would not be properly applicable, for here there was complete adhesion, and, possibly, in the course of time the abscess might have pointed and opened in that direction, although he does not believe that such result would have occurred. With-

out active interference he thinks the disease would have resulted in death from pyæmia in a very few days.

On March 9, 1885, he visited Anna N., in consultation with Dr. Louis Braun, of this city. She was twenty-four years old, had been married six years, and had one child eighteen months old. On February 1—five and a half weeks prior to his visit—she had miscarried, producing a fœtus four months old. A few days after that event, Dr. Braun found the patient suffering from symptoms of pelvic inflammation, which had since continued, with varying severity. The pelvic swelling, which he detected on examination, appeared to involve all the periuterine structures, but to a greater extent on the right side; during the past few days, however, it had seemed greater on the left side. From the onset of the attack the pulse had been rapid, and the temperature elevated—the former ranging from 110 to 130, and the latter being persistently over 102° F., reaching on one occasion 104° F. Pain had been severe, but controllable by morphia. The appetite had failed utterly and the stomach finally rejected all food. At the time of Dr. Jackson's visit, the patient was pale, extremely emaciated, and her visage showed marks of prolonged suffering.

On examination he found on the left side of and behind the uterus, a swelling as large as a medium-sized orange, with rather indistinct outlines. Its lower portion was in a plane with or somewhat below the *os uteri*, and on bimanual palpation its upper margin could be felt extending above the fundus, which was pushed strongly to the right. Both uterus and tumor were immovable. The latter had a slightly elastic feeling in some places, although he was unable to detect any certain fluctuation through the vagina, rectum, or hypogastrium. Through the posterior vaginal wall, at a point about an inch above the lower portion of the swelling, he fancied he received a sensation of bogginess, and this, taken in connection with the history of the case, gave him the belief that pus was present. Accordingly he thrust a curved trocar and canula into the swelling by way of the vagina to the depth of about two inches, with no other result than the emission of a few drops of blood. It was then concluded that the patient should have prolonged hot-water vaginal douches daily, rectal feeding, and appropriate anodyne and tonic medicines.

On April 18th—five weeks later—he saw the patient again, with Dr. Braun, who reported that after his former visit the symptoms had all become gradually ameliorated, the stomach resumed its functions, pain subsided, pulse and temperature became normal. No menstrual or other discharge had appeared. This improved condition had continued until two days before, when, without apparent cause, the patient had a chill, followed by rapid pulse, high temperature, pelvic pain, and irritability of the bladder. Under anæsthesia he examined the abdominal and pelvic organs. The pelvic swelling had undergone no marked change, except that it seemed to have increased in an upward direction, extending now to a point about an inch above the *symphysis pubis*. At this place he thought he detected obscure fluctuation. The swelling, as felt *per vaginam*, was hard at every accessible point. All operative measures were declined by the patient and her friends, and the treatment advised consisted in the administration of morphia and quinine, and peptonized milk for diet.

April 19.—The patient was much worse. The pelvic pain was controlled only by large doses of morphia given hypodermatically, and the stomach retained almost nothing. The pulse was 130, temperature 102° F. It was decided that laparotomy should be performed the following day.

20th.—The patient was etherized, and the bladder emptied by catheter. She was the thinnest person Dr. Johnson ever saw placed upon an operating table. Immediately before the taking of ether her pulse was 124, temperature 103° F. The hair of the pubis was shaven off, and the skin of the abdomen washed with soap and carbolized water. An incision three inches long, ending below at the upper portion of the *mons veneris*, was made in the middle line of the hypogastrium. Deepening the cut, he came upon the peritoneum which, however, could not be separated from the parts beneath. Proceeding inward through dense structures, the knife suddenly entered an abscess cavity, which at once gave exit to a stream of pus to the amount of two or three ounces. Passing his finger through the opening he found that the cavity extended downward, behind and to the left of the uterus, about three inches. The abscess walls proper could not be accurately defined. The inflammatory processes had matted together the upper part of the uterus, the left broad ligament, tube, and ovary. The cavity was washed out, and a rubber drainage tube passed to the lower end, the outer portion of the tube being stitched to the edge of the wound at its lower extremity. The remainder of the wound was closed with sutures, and dressed in the usual manner. The night following the operation the patient slept fairly well without an opiate.

When he saw her the next day she had taken milk and lime-water with relish; her pulse was 108, and temperature 100⅖° F. In brief, the relief of the symptoms was immediate, and the recovery uninterrupted. Pus continued to discharge for more than six weeks in constantly diminishing quantity. The tube was then removed. Menstruation appeared July 20th, and has been regular since. He examined the patient September 25th. The uterus was still in a position of right latero-version, but movable in a slight degree. The parts about the left broad ligament were thickened and somewhat tender. An irregularly shaped mass occupied Douglas's space, and extended upward and to the left. The patient had gained greatly in weight, was ruddy, and was doing her own housework.

In a letter dated December 29th, she states, "I have no pain, and feel better than I have for four or five years."

Dr. Jackson stated that Mr. Lawson Tait had performed thirty-two operations for pelvic abscess, in every one of which a cure has resulted.

DR. CHRISTIAN FENGER said that he would not call the operation a laparotomy at all, but simply an oncotomy. An abscess was opened, and the operation does not differ materially from the opening of a deep-seated abscess in any other region of the body—*e.g.*, in an extremity. As he understood the term laparotomy, and he was not aware that it was ever used otherwise, it means that section of the abdominal parietes is followed by an operation performed within the peritoneal cavity. If the wall of an abscess situated in an abdominal organ has become adherent to the visceral

surface of the abdominal parietes, the peritoneal cavity is of necessity obliterated to the extent to which adhesions have formed. An incision made over such adhesions does not open the peritoneal cavity, and consequently the operation cannot be spoken of as a laparotomy. In the paper which he published on "Laparotomy for Periuterine Abscess,"[1] it was distinctly stated that the only way by which it seemed possible to get at the abscess is by opening the peritoneal cavity; it is also mentioned that omentum and intestines were found between the walls of the abscess and the walls of the abdomen.

Concerning the etiology of pelvic abscess, he would like to call attention to the literature of the subject. Sänger,[1] whose statements regarding etiology he has found to be the most complete, says that one out of nine of all gynecological affections is of gonorrhœic character. He further says that fifty per centum of these are diseases of the uterine appendages; although, of course, any part of the genital tract may be primarily invaded. He finds that disease most often has its principal focus in the Fallopian tubes, where it begins and whence it spreads. He distinguishes six kinds of salpingitis: (1) septic, puerperal and non-puerperal; (2) tuberculous; (3) syphilitic; (4) actinomycotic; (5) gonorrhœic; (6) a mixed form. The gonorrhœic is the most common form of the disease, and it produces the most severe cases of pelvic inflammation. It has not as yet been proven that the gonococci of Neisser can, of themselves, produce abscesses; but destruction of the surface of the mucous membrane is sufficient; an entrance is thus given to the septic pus microbes, the *staphylococcus aureus* and *albus* and the *streptococcus pyogenes*, which are probably always present.

The invasion having taken place, we must ask ourselves by what channel does the inflammation travel? Where should we expect finally to find an abscess in case one should form? The beautiful experiments of Bitas, König,[2] and Schlesinger[3] will be remembered; experiments which, about three years ago, he repeated in the dead-house of the Cook County Hospital, although the purpose he had in view at that time was a different one. These gentlemen injected, by means of fine canulæ, fluids, such as colored glue, into the periuterine tissues of puerperal and non-puerperal bodies. König found (*a*) that fluids, injected into the region around the *fundus uteri* and uterine portion of the Fallopian tubes, first pass upward into the iliac fossa to reach the crest of the ilium, then downward toward Poupart's ligament, and finally into the *pelvis minor* or true pelvis; (*b*) fluids injected into the periuterine tissues, in the neighborhood of the internal os, first fill the extraperitoneal connective tissue of the *pelvis minor*, then follow the round ligament as far as Poupart's ligament and ascend in a backward direction into the iliac fossa; (*c*) that when the injection is made near the lower portion of the posterior surface of the uterus, the fluid first flows into the *cul-de-sac* of Douglas and thence rises into the iliac fossa.

Schlesinger, although in the main agreeing with König, differs with him in the following two points: He says, (*a*) when fluid is injected into the neighborhood of the *fundus uteri*, it first passes into the iliac fossa, but thence it does not descend into the true pelvis, as König observed, but it ascends, running up the anterior abdominal wall; (*b*) from the broad ligament the fluid finds its way into the iliac fossa and thence upward toward the kidney, running in the mesentery of either the ascending or descending colon. Schlesinger further makes the interesting statement that his pericervical injections filled the pericervical tissues, but that they never produced a tumor which could be felt above the *symphysis pubis*.

So far as his experience went, the results of these experiments correspond well with the clinical facts. The puerperal abscesses which he has opened were situated, two over the crest of the ilium, one on Poupart's ligament, and one on the anterior abdominal wall, about three inches above the ligament.

As before mentioned, about three years ago, he made similar experiments; the fluid he employed was milk. His object, at the time, was to ascertain the exact relative position of such an artificial exudate, representing an abscess, with regard to the anterior wall of the abdomen, especially of an exudate in one of the broad ligaments. He wanted to see what difficulties he must be prepared to encounter in uniting the walls of a pelvic abscess, after having opened it, to the edges of the abdominal wound. As might have been expected, he found the difficulties of the operation to vary partly with the size of the exudate and partly with the degree of tension of the abdominal parietes. On the whole, the matter seemed simpler than he had *a priori* imagined.

Whether in cases of pelvic inflammations and abscesses laparotomy should be done or not, is a question of comparatively recent date, it being but little older than five years. The operation is always to be regarded as a last resort, and should never be thought of in cases in which the abscess can with safety be reached in any other way, which, of course, includes opening it through the rectum. Lawson Tait,[4] of Birmingham, and Martin, of Berlin, were the first who attempted to prevent the terrible contingencies of pelvic inflammations by attacking the disease at its original seat; Lawson Tait[5] removed the suppurating uterine appendages, Martin[5] operated for suppurating periuterine hæmatocele. Tait operated for a suppurating hæmatoma of the right Fallopian tube (peritonitis), in 1878, and he removed both tubes for pyosalpinx and an ovary for abscess, in 1885. In 1885 Martin[6] performed laparotomy in three cases of intraperitoneal hæmatoma—*i. e.*, retrouterine hæmatocele. He opened the peritoneal cavity, incised the sac, and evacuated the blood and pus; he then drained into the vagina, through the pouch of Douglas, and closed the opening he had made into the sac from the peritoneal cavity by sutures. In the discussion following the reading of Martin's paper, Kaltenbach opposed Martin's operation, and pleaded for an extraperitoneal operation, reaching the abscess either from above Poupart's ligament, or, as Hegar recommended, from the ischio-rectal fossa. In 1880, Feldman,[7] of Göttingen, published an operation for double pyosalpinx. In 1882, Baumgärtner published a case of hæmatocele in which Martin's operation had been successfully performed. These more or less sporadic operations called the attention of the profession to the subject, and already during the following year, 1883, upward of fifty or sixty cases were reported, in which laparotomy was resorted to

[1] The Medical News, May 9, 1885, p. 527.

for the cure of pelvic inflammations. Aside from the 46 cases which Lawson Tait published in his book, *Diseases of the Ovaries*, he reported 7[8][9] more. T. Gaillard Thomas[10] reported 5 cases; Zeiss,[11] Thornton,[12] Baer,[13] and Proschownick,[14] each 1. In 1884, America was represented by 15 cases: Stone,[15] 1; Lee,[16] 4; Lusk,[17] 1; Martin,[19] of Chicago, 1; Goodell,[20] 2; Jones,[21] 1; Thomas,[22] 1; Dawson,[23] 1; Polk,[24] 3. In England we have 35 cases: Tait,[25] 15, 7 of pelvic abscess; McDonald,[28] 2; Lediard,[29] 1; Chapman,[30] 1; Savage,[26] 9, 8 of pelvic peritonitis, and 1 of hæmatocele; Malin,[27] 7. In Germany 22 cases were reported: Martin,[31] 8 of suppurating hæmatocele; Gusserow,[32] 7, in 4 of which the sac was stitched to the abdominal wound; Sänger,[33] 5; Schröder,[34] 1; Quetsch[35] 1.

It is evident that the operation has rapidly gained ground, and that laparotomy has come to occupy a prominent place in the treatment of pelvic inflammations and abscesses. It may be objected that as yet the indications for the operation are not as clearly defined as we might wish them to be; in answer to this, we can only say that the operation is new, and that we must consider the importance of the subject the guaranty of process in the right direction.

He wished to add a few words about the subject, as it is modified, in cases in which the periuterine abscess communicates with the rectum or some other part of the intestines.

When a communication exists between an abscess and the intestinal tract, evacuation of the pus into the bowel is sometimes followed by spontaneous recovery. As a rule, however, such a condition is extremely dangerous, for the abscess cavity is constantly being infected with septic material from the intestine. Péan, in his *Diagnostique et Traitement des Tumeurs de l'abdomen et du Bassin*, t. ii. p. 155, writes that if a periuterine abscess opens into the intestine, bladder, or uterus, septic infection will not fail to produce its symptoms and may speedily prove fatal. This statement may be a little too broad. Schröder, in his *Krankheiten der Weiblichen Geschlechtsorgane*, Leipzig, 1880, says that when the abscess has broken into the gut or bladder we have to deal with a grave condition, as it is difficult or impossible to reach the abscess from the vagina. At that time, in 1880, he had not thought of the practicability of laparotomy in such cases. When the abscess has evacuated itself into the rectum, he considers it less difficult to get access to it, and he advises cutting through the posterior *cul-de-sac* of the vagina, and dissecting upward between the uterus and the rectum. Emmet[39] writes that when an abscess opens into the rectum, the case is very much complicated by septic infection through the feces. The quotations given are sufficient for us to conclude that, when there is communication between a periuterine abscess and the rectum, the patient is in great and constant danger of dying from septic infection, and that, therefore, an operation should be done, if possible, to provide free drainage of the abscess. Dr. W. H. Byford was opposed to the line of treatment suggested—*i.e.*, laparotomy; he thought that the sphincter ani should be dilated or incised, the communication between the abscess cavity and rectum should be dilated with the finger, a steel dilator, or the knife, the cavity of the abscess scraped, washed out, and drainage effected per rectum.

Aside from the old, now justly abandoned, puncture of a retrouterine abscess per rectum, Dr. Byford's method of attacking such an abscess is entirely new. He has nowhere met with a similar suggestion. If the abscess communicates with the intestine at a point beyond the rectum, a rectal operation is of course out of the question. If the opening into the rectum lies three inches or more above the anus, dilatation is hardly practicable. Such openings are often narrow and tortuous, the neighboring organs are immovable, and even if we divide the sphincter and the retrorectal tissues, we are obliged to work in the dark, for it is difficult or impossible to draw such an opening well down into view. Those who have extirpated a carcinoma of the rectum, will appreciate the difficulties of operating high up in the gut.

But, above all, he earnestly warned against adopting Dr. Byford's plan of employing in this region a knife for the purpose of dilating the opening of an abscess. Working here with a knife, the risk is always run of opening the peritoneal cavity and of dividing large vessels which are bound in the wall of the sac; as he once demonstrated in the walls of an abscess, situated in a broad ligament. The large uterine vessels may be found anywhere, and if wounded, it is next to impossible to ligature them securely.

In a relatively small number of cases the abscess breaks into the rectum near the anus; in these, dilatation may be tried, and it may even effect a cure, as we learn from Dr. H. T. Byford's case. However, we must hear of more than one case before we can judge of the value of this method of treatment. Being somewhat enthusiastic over his rectal method, Dr. Byford disposes of laparotomy by saying, "The treatment by abdominal section cannot for a moment be entertained, for at least two reasons," of which the first one is that it is necessarily followed by a recto-abdominal fistula, which is incapable of being promptly cured, and is apt to become a source of systemic infection. Of the numerous examples we have, he mentioned the perityphlitic abscesses to show that an intestino-abdominal fistula does not contraindicate the evacuation of the abscess. We operate to save life, whatever may become of the fistula afterward; besides, these fistulæ do frequently close. In the third case referred to, it closed in two months. The closure of a cœcal fistula is a common occurrence. The explanation is not far to seek. Whenever an abscess breaks into the gut, the condition of the abscess necessitates such an outlet for the pus. When the abscess is drained through a counter-opening in the abdominal wall or the vagina, and thus transformed into a fistula, the necessity for emptying its contents into the bowel no longer exists, the opening has become useless and it gradually contracts.

A fistula is not itself a source of infection. We never hear, for example, of a primary local tuberculosis originating in a fistulous tract. An anal fistula, when tuberculous, is always preceded by a local tuberculosis.

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Dr. W. W. Jaggard submitted an extract of a letter from Dr. Paul F. Mundé, received about the fifteenth of February, who writes: "I do not agree with Dr. Byford's rectal treatment, as a rule, and certainly have not in my quite extensive experience found true laparotomy required to evacuate and drain a pelvic abscess. I mean opening the peritoneal cavity. Neither has my experience been that of Dr. Dudley, who says that the mortality from abscess opening into the rectum is great. I have seen only one case that I thought must die, in which there was a spontaneous rectal perforation."

Dr. Henry T. Byford said that a few years ago Sir James Y. Simpson invented the operation of division of the cervix for uterine flexures. Almost all gynecologists began performing it, and in a short time had done more harm than good with it. Only a few years since, Dr. T. A. Emmet invented the operation of tracheiorrhaphy. While justly maintaining that it is an exceedingly valuable operation in proper cases, he has recently stated that it may have done more harm than good. A short time ago, Lawson Tait invented a method of treating pelvic abscess by laparotomy, and surgeons are resorting to it with a certain degree of success. The method is undoubtedly gaining favor, and bids fair to be employed with disastrous frequency, and possibly do more harm than good. In endeavoring to fix the limits of the usefulness of laparotomy for pelvic abscess, we must go beyond the recorded experience of the laparotomists, for the records are not yet all in. He understood that Tait opens the abdominal cavity only in those cases which cannot be reached from below.

Dr. Fenger remarked that Tait does not operate through the rectum. He performs laparotomy when he cannot open through the vagina.

Dr. Byford continuing: Then we may say that abscesses like the one reported (which point above) should be opened by a simple incision, without entering the abdominal cavity; and those which point in the vagina should be opened and treated through the vagina. Now the question is, should those which point in the rectum be opened and treated through the rectum? What he claims is, that the procedure has not been thoroughly tested by the profession. As has already been stated by Dr. William H. Byford, we can, by thoroughly stretching the sphincter of the anus, get into almost any abscess which is truly pelvic in its nature, and points, or opens, in the lower four or five inches of the rectum. We can dilate the opening, and then enlarge it with the fingers, without the use of any cutting instruments, against which objection has just been made. The danger of hemorrhage from the wounding of bloodvessels is certainly very much less than the dangers in operating by laparotomy. There must be danger connected with any operation, but in the one just mentioned it is reduced to the minimum. The entrance of feces is of minor importance, for in the presence of perfect drainage and antiseptic irrigations, they do not remain in the cavity, and do not prevent it from filling in with granulations from the top and sides, and contracting and healing. Therefore, dilatation per rectum should be first tried; and if any cases, after trial, cannot be thus successfully treated, laparotomy, or some other substitute, should be considered. Dr. Fenger had quoted and then criticised his arguments against laparotomy, without mentioning that he was only referring to abscesses that could be reached through the rectum. With regard to recto-abdominal fistulæ, he must still maintain that the abscess will close up and get well more readily with one opening into the rectum, properly

made or enlarged, than if such a fistula exist in which the rectal outlet has not been enlarged. Gases and feces will almost invariably pass through and keep the abdominal end of the fistula open, and will lodge in septic pockets, or sinuses, resulting from the inadequacy of the opening at the rectal end. If we close such a fistula above, we have the unfavorable conditions of the original abscess, and must still practise dilatation per rectum. Martin's method of instituting perfect drainage through the vagina, and then closing the abdominal opening, would undoubtly be sound in principle, were it not that an operation through the vagina should take precedence when practicable; and when not, a single opening from above must be regarded as fulfilling the requirements, as is proved by the experience of Tait and others. Hence, Martin's method must eventually be relegated to the exceptional procedures.

He did not wish to be understood as not believing in laparotomy for pelvic abscess, but that this procedure, being popular and new, it is apt to be resorted to unnecessarily and unjustifiably. The remarkable success of Tait should not be allowed to mislead us. His mastery of *technique* and fertility of resource, in abdominal surgery, justify him in assuming risks which others may not.

BALTIMORE ACADEMY OF MEDICINE.

Stated Meeting, March 2, 1886.

Dr. H. P. C. Wilson reported a case of

CIRCUMSCRIBED PERITONEAL DROPSY SIMULATING OVARIAN DROPSY.

The case could not be called one of cystic dropsy, because the fluid was not contained in a distinct sac; but, by adhesions from general peritonitis, the fluid was restricted to the front and lower part of the abdomen, and not allowed to gravitate throughout its whole extent. Change of the patient's position did not change the position of the fluid, and there was nothing in her history or symptoms to cause us to suspect a former, or recent, peritonitis. She had never been sick a day in her life, and all her organs were acting well.

Mrs. James P., married, aged thirty-eight, the mother of seven children—twins once, four miscarriages—four times delivered with forceps. Began to menstruate at fourteen. Noticed a swelling in the abdomen September 1, 1885. Could not locate its beginning in either groin or lower abdomen. Has had regular menstruation always, except when pregnant. She was sent to Dr. Wilson by Dr. N. B. Baker, one of the most eminent physicians in Martinsburg, with the statement that she had an ovarian tumor. He confirmed his diagnosis, when she was admitted to the Union Protestant Infirmary, February 12, 1886.

She had a prominent fluctuating tumor of the lower abdomen. Dull on percussion to two inches above the umbilicus, dull in either groin, and presenting the characteristics, round and prominent, of a cystic tumor of the ovary. Percussion was clear in both lumbar regions. Changing the patient's position did not change the lines of dulness anywhere. There was no tenderness over the abdomen, to any amount of thumping or pressure.

The uterus was free in the pelvic cavity, and measured three inches by the sound. She had the facies ovariana. He had no doubt that the case was one of cystic disease of the ovary.

He again reviewed his former examination, and was satisfied that he had a simple cyst of the ovary, without complications, to deal with.

Dr. Robert T. Wilson cut carefully into the abdominal cavity, making an incision of three inches down to the peritoneum, and entering the cavity by an opening of about half an inch. Immediately, there was a gush of a greenish-yellow fluid, and turning the patient on her side, about one and a half gallons escaped; enlarging this opening to three inches and looking in, a solid tumor was discovered about nine inches long, six inches broad, and three inches thick. The walls of the abdominal cavity were festooned with recent lymph, and patches of the same were seen everywhere. The hand, passed in, found adhesions everywhere. The uterus and ovaries were normal, but we could not determine by the touch and sight what this tumor was, till we had lifted it from the abdominal cavity, and found it was made up of coils of intestine agglutinated with lymph. It was so firm and solid that, at first sight, it was hard to believe it a mass of intestines. It was not agglutinated to other abdominal viscera, but seemed to be free in the peritoneal fluid. The mass was returned to the abdominal cavity, the abdominal opening closed with seven silver wires, and the wound dressed as usual in ovariotomy. Thus the case which Dr. Wilson was sure was ovarian dropsy, turned out to be localized peritoneal dropsy, the result of peritonitis. This woman told him before the operation, and has several times confirmed her statement since, that she had never been sick a day in her life, except during confinements, and her youngest child is now two years old. Dr. Baker, who has been her physician ever since her marriage, confirmed her statement.

For the diagnosis there was a fluctuating tumor, occupying the lower part of the abdominal cavity, and the abdomen was rounded prominently about the umbilicus. In the dorsal position, it did not bulge out to either side. There was clearness on percussion in both lumbar regions. Changing the position of the patient did not change the lines of dulness on percussion. She had no tenderness on abdominal pressure. All of her organs were functionally normal, and the pelvic viscera were as they should be in such a supposed ovarian cyst. No anasarca, no œdema of lower extremities.

Dr. Wilson did not see how we are to avoid falling into the error into which he had been led. Had he tapped her (which should never be done in ovarian tumors if possible), he would have been none the wiser, but would rather have had his diagnosis confirmed by the solid tumor which would have remained. He had not implicit confidence in the ovarian cell as a means of diagnosis.

The greater his experience, the more he is impressed with the propriety of exploratory incisions in all cases of abdominal tumors where life is involved. He is convinced that many more lives are lost for the want of such incisions, than on account of them.

The case did well, and on the sixteenth day was out of all danger.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, March 5, 1886.

The Second Vice-President, George Wilkins, M.D., in the Chair.

RUPTURE OF THE HEART: SURVIVAL OF PATIENT FOR TWENTY HOURS.

Dr. Wyatt Johnston exhibited a heart, removed from a woman æt. seventy-four, who was the subject of fatty degeneration and aneurism of the left ventricle. The patient had been in the surgical wards of the Montreal General Hospital for some time, suffering from diffuse cellulitis of the right forearm and arm. She was steadily progressing toward convalescence, when suddenly, one morning about two o'clock, she complained of great faintness, weakness, and distress. The house surgeon, who was called, examined her heart, but found no signs sufficient to account for the symptoms. There was no murmur. The visiting surgeon, when on his daily rounds, at 1 P. M., examined her and found a well-marked systolic murmur. Dr. Ross was asked to examine her, which he did. The patient was suffering at this time from syncope, and her radial pulse was hardly perceptible. She lived till 10 P. M., twenty hours from first attack.

At the autopsy, the pericardium was found to contain eight ounces of fluid blood, and a small amount of firm clot was adherent to the anterior surface of the heart. On dissection, the heart showed extensive fatty degeneration; the valves were healthy, but in the left ventricle a pouched sac the size of a walnut was found: this was situated in the wall of the septum, and bulged toward the right ventricle. The sac communicated directly through a small opening two mm. in diameter, with a lacerated external opening of large size in septum. The external orifice was situated to the right side of the anterior coronary artery, and was infiltrated with extravasated blood. The arteries of the patient were very atheromatous, and in the abdominal aorta immediately above the bifurcation was a fusiform sacculated aneurism. At this point there were extensive fatty changes of the intima, with formation of cholesterin. The sac contained a large, soft, dark, non-adherent clot.

Dr. George Ross, alluding to the above case, said that when he first examined the patient, some twelve hours after the syncopal attack, he found the heart feeble, and a loud systolic blowing murmur was heard in the lower sternal region only. This was in the situation of a tricuspid murmur, yet he did not think it was valvular. He found it difficult to explain the physical signs. The character of the murmur was, of course, cleared up by the autopsy. The most remarkable circumstance about the case was the length of time the patient lived with a ruptured heart—about twenty hours. This was explained by the smallness of the opening, which would allow blood to flow but slowly into a pericardium already distended. He thought the peculiar murmur might have been due to the formation of a current in the aneurismal sac which was found in the left ventricle.

Dr. Wilkins thought that possibly the murmur might have been produced by the squeezing out of a small quantity of blood through the small opening in the wall of the heart during each systole.

CALCULOUS KIDNEY.

Dr. Johnston showed the kidney of a patient who had died of heart affection, with thrombosis of right middle cerebral artery. Before death, pus and blood had been observed in the urine. The right kidney was enlarged to double its normal size, and distended with fluid. The renal tissue was destroyed, and organ converted into a series of cysts containing fetid ammoniacal fluid, tissue débris, and uric acid granules. In the inferior extremity only a small amount of renal tissue remained, and in the calices were several small uric acid calculi. This portion of kidney alone communicated with the ureter.

CORRESPONDENCE.

EXTRAUTERINE PREGNANCY CHANGED TO INTRAUTERINE BY THE GALVANIC CURRENT.

To the Editor of The Medical News.

Sir: I have this evening, for the first time, seen the article by Dr. Stabler, in your issue of February 27th, and the comments thereon by your semi-anonymous correspondent, E. Y. D., in your issue of March 6th.

As it happens, I had already marked several parts of Dr. Stabler's article by a ?, meaning thereby to indicate that there were doubtful points in his paper, such as the absence of the detection of a tumor to the side of the uterus by bimanual palpation; the insufficiency of proof that the uterine cavity was empty simply because the sound entered only 2¾″, and no fluid followed the use of the sound, and because abortion was not induced by applications to the interior of the uterus. In fact, with due deference to Dr. Stabler's diagnosis, and appreciating full well the difficulties attending, in some cases, the recognition of the presence of a fœtus within the uterus in the early months, there are certain defects in his report which almost involuntarily forced upon me a doubt as to whether his diagnosis of extrauterine fœtation was correct. For I have seen a uterus in the early months of pregnancy with so irregular an outline as to render it almost impossible, even to the expert touch, to decide precisely where its wall ended and the adjacent tissues began; and I know of a case where the sound entered only 2½″, when later on the uterus was found to contain a large fleshy mole, and of another where the dilator, curette, and repeated intrauterine faradization failed to bring on abortion or even the menorrhagia which the treatment was intended to induce.

Hence I am inclined to side with E. Y. D. in one of his criticisms of Dr. Stabler's case; but I cannot accept his objection to the possibility of the embryo being transferred from the tube to the uterine cavity by muscular contraction, because, as he says, there is "in these cases *thinning* . . . . of the muscular coat of the tube."

In the first place, it is not exactly claimed by those who have reported cases of this transfer of the extrauterine embryo to the uterine cavity, that the embryo was situated *wholly within the tube*, but rather in that portion of the tube which traverses the uterine wall, a hypertrophy of which during early gestation is not at all improbable. It is true, rupture does occur in these cases

by thinning of one portion of the sac. But, if the least resistant portion of the intramural ovisac happens to be the uterine orifice of the tube, a rupture at another point will probably not take place, since the ovum will most easily find its way into the uterine cavity. This point was made by me in the letter to THE NEWS of December 26, 1885, referred to by Dr. Stabler.

In the second place, your correspondent, E. Y. D., overreaches himself in his effort to be funny, when he compares my belief in the possibility of the electric current exciting sufficient muscular contraction to "move an embryo a few inches along the *Chemin de Fallopius*," to the power of electricity to move a locomotive engine, and to do other wonderful feats. If the interrupted electric current can so increase the peristaltic action of the intestines as to overcome obstinate constipation, a fact which every practical electro-therapeutist can attest, there is nothing strange in the fact claimed for the same agent in certain favorable cases of tubo-uterine gestation. I must, besides, remind your correspondent that in the case of transfer of the fœtus from the tubo-uterine sac to the normal uterine cavity, which I myself have reported, spontaneous uterine contractions, unaided by electricity, produced the transfer. But I am decidedly of the opinion that such a transfer of the fœtus must be greatly aided by the interrupted electric current.

I am yours,

PAUL F. MUNDÉ.

NEW YORK, March 15, 1886.

NEWS ITEMS.

NICOTIA.—The French Society for the Prevention of the Abuse of Tobacco has received fifty-two memoirs for the concours of 1885. Three of these were for the prize in medicine, seventeen for the institutor's prize, five were relative to the influence of tobacco on cholera, five discussed the means for preventing the sale of tobacco to children, and twenty-two were upon divers allied topics. The distribution will occur on the second of May.

M. PASTEUR has just received from the Count de Laubespin the sum of 40,000 francs to increase his facilities for the prevention of hydrophobia.

MOSS AS A SURGICAL DRESSING.—For some months past, moss has been employed as a surgical dressing in the Teaching Hospital in St. Petersburg; it costs fifty kopecks a pood (a shilling for thirty-six pounds). The results have been very satisfactory.

THE CURE OF TUBERCULOSIS.—A fund has been created in Paris for the institution of experiments with a view to the cure of tuberculosis. Large sums are already subscribed for this object.

STATUE TO CLAUDE BERNARD.—A statue, erected to the memory of Claude Bernard, the eminent physiologist, was unveiled on February 7, in the presence of the Minister of Public Instruction, delegates from the Institute and University of France, amongst whom were also present MM. Paul Bert, Pasteur, Renan, and other scientific and literary men. The statue is of bronze, and considered a very good likeness, representing Claude Bernard in a pensive mood, as he was often seen in his laboratory, while he was meditating over a new problem from which he had not yet formed any positive deductions.

REMOVAL OF QUARANTINE.—Supervising Surgeon-General John B. Hamilton has issued, with the approval of the Executive, the following circular to the medical officers of the Marine-Hospital Service, customs officers, and others concerned:

Official information having been received that the smallpox, which recently prevailed as an epidemic in certain provinces of the Dominion of Canada, is now under control; therefore, the regulations issued October 10, 1885, for the maintenance of quarantine inspections on the northern frontier of the United States, are hereby revoked.

DR. FLINT'S LIBRARY.—Dr. Austin Flint has bequeathed his valuable library to the New York Academy of Medicine.

BUREAU OF PUBLIC HEALTH.—The House Committee on Commerce instructed Representative Davis to report favorably a bill to establish a Bureau of Public Health in the Interior Department, to be presided over by a Commissioner of Health, at an annual salary of $4500. The bill abolishes the National Board of Health, transfers the duties of preparing reports and securing information regarding sanitary and other matters affecting the public health, of framing rules and regulations for the prevention of disease, and of making investigation into the origin and prevention of contagious and infectious diseases, from the Marine-Hospital Service and the National Board of Health to the Bureau thus created.

DEATH OF MR. COOPER FORSTER.—Mr. Cooper Forster, last year President of the Royal College of Surgeons, died in London on the second of this month, in the sixty-third year of his age. He had been travelling in Italy for a few months, and his fatal illness is attributed to a subacute gastritis, resulting from the use of foreign foods.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 16 TO MARCH 22, 1886.

HOFF, JOHN VAN R., *Captain and Assistant Surgeon.*—Ordered from the Department of California to the Department of Missouri. —*S. O.* 60, *A. G. O.*, March 13, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MARCH 20, 1886.

BAILHACHE, P. H., *Surgeon.*—Detailed as Chairman of Board of Examiners, March 15, 1886.

FESSENDEN, C. S D., *Surgeon.*—Detailed as member of Board of Examiners, March 15, 1886.

PURVIANCE, GEORGE, *Surgeon.*—Detailed as of Examiners, March 15, 1886.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLVIII. SATURDAY, APRIL 3, 1886. No. 14.

ORIGINAL LECTURES.

CARTWRIGHT LECTURES.

ON CERTAIN PROBLEMS IN THE PHYSIOLOGY OF THE BLOOD CORPUSCLES.

Delivered before the Association of the Alumni of the College of Physicians and Surgeons, New York, March 23, 1886.

BY WILLIAM OSLER, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA

LECTURE I.

THE BLOOD PLAQUE.

Introduction.—Around the blood corpuscles still centre some of the most interesting questions in physiology and pathology, and though amid microbes and cultures we may have forgotten them for the moment, they are nevertheless still calling for solution, and perplexing this quite as much as any of the six or seven generations which have passed away since Loeuwenhoek first detected the red corpuscles in the human blood.

The origin and life history of the corpuscles of the blood have been, and still are, among the great secrets of physiology. Strange, indeed, is it to think of the thousands of able observers who have gazed long and ardently, with rude and with perfect instruments, vainly endeavoring to solve the riddle constantly propounded by these common objects of study. In no department of physiology has so much labor been spent with so little apparent result. While in other lines we have penetrated to the centre of certain biological mysteries, the progress here seems painfully slow, and the discovery by Wharton Jones, in 1846, of the amœboid power of the colorless corpuscles, the rediscovery by Cohnheim of their migratory power, and the discovery of the blood-forming function of the marrow, may be said to be the most important additions to our knowledge in this generation.

The activity of research during the past decade has had, however, a perceptible influence, and there are signs of breaking in the heavy clouds which overhang the origin of these corpuscles, and the darkness is certainly less dense than it was.

A peculiarity of these perennial problems is that certain phases for the time engage the attention of observers, and the laboratory activity the world over seems centred upon them, with the result, in a few years, of an enormous increase in the literature, and after the question has been thoroughly fought out and quiet is resumed, we are thankful if only an outpost has been gained in the struggle and we are a step nearer to the citadel of truth.

As regards the blood corpuscles, the work of the past few years has been largely in two directions—toward the determination of the existence or non-existence of a third corpuscle in the blood, and in the study of the histological processes attending degeneration and regeneration of the corpuscles in disease, and upon these subjects I shall hope to engage your attention during this course.

I propose, therefore, in the first lecture to consider the much debated third corpuscle, or hæmatoblast of Hayem, which, so far as I know, has not yet received systematic consideration before any American or English audience. In the second I shall discuss certain histological problems connected with the degeneration and regeneration of the blood corpuscles; and in the third I shall present a statement of recent views on the relation of the corpuscles to coagulation.

THE THIRD CORPUSCLE OR BLOOD PLAQUE.

Definition.—A colorless protoplasmic disk, constant in mammalian blood, measuring from 1.5 to 3.5 micromillimetres. The number per cubic millimetre in the blood of a healthy adult is about 250,000, but their number varies greatly at different periods of life and with varying conditions of health and disease. The ratio to the red is about 1 to 18 or 20. They are delicate elements, and, like the red corpuscles, tend on the withdrawal of the blood to adhere to one another, when they form the irregular granular clumps which have long been known as Schultze's granule masses.

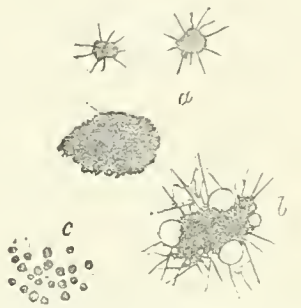
Name.—It will be necessary, at the outset, to refer to the names which observers have given to this corpuscle. Unfortunately they are rather numerous, and no one of them entirely satisfactory. Donné,[1] whose description is the earliest, called them *globulins*. Zimmerman[1] spoke of them as *elementary corpuscles*. Later, the collected groups were referred to as "*granular débris*" or Schultze's[3] *granule masses*. Among the more recent observers, Hayem[4] gave the name of *hæmatoblasts*, and Bizzozero[5] that of *blutplattchen—blood-plate*. Various writers refer to this element as the *third corpuscle*, while in the research of Kemp,[6] just issued from the Biological Laboratory of Johns Hopkins University, the term *plaque* is used and has received the sanction of Prof. Martin. To the terms *third corpuscle* and *hæmatoblast* there is the serious objection that these names have been applied to other bodies which have nothing to do with the elements in question. The former, to the so-called invisible corpuscle[1] of Norris, and the latter to the nucleated red corpuscle of the bone marrow. The name hæmatoblast, moreover, carries with it certain theoretical conceptions regarding the functions of these bodies which may or may not be true. I am inclined to favor the name which Bizzozero has adopted, partly

[1] Shortly after the publication of Bizzozero's paper, Norris claimed that the corpuscles described in it were the same as the barely visible corpuscles of his "fugitive group," but a study of the beautiful photographs in his book, will, I think, convince anyone with a practical knowledge of the blood-plates of Bizzozero, that they are separate elements. The granules which he figures (Fig. 45) as resulting from the breaking up of the younger or fugitive corpuscles are in reality the disintegrated blood-plates. Moreover, the corpuscles which he figures are uniformly larger than the blood-plates.

because we are indebted to the distinguished Turin Professor for a series of able researches which have awakened the liveliest interest in these corpuscles, and partly because usage of late has confirmed the name. Blood-plate, the English equivalent of the word *blutplattchen*, is by no means euphonious, while the French *plaque*, adopted by Kemp, is perhaps more convenient and might be employed in the future by American and English writers.[1]

Methods of Study.—Let us first consider the plaques in blood examined in the usual manner, without the addition of any reagent; and let us suppose the blood to be taken from a case of consumption or cancer, or from a newborn animal, as in these states these corpuscles are abundant. We then find, in addition to the red and colorless corpuscles, many grayish-white granular masses of various sizes and shapes. Examined at once, and if too much pressure is not exercised by the top-cover, the edges of these masses are clearly defined and they form compact aggregations. With a power of 500 diameters, the composite structure is well seen and the granular character is plainly discernible to be due to

Fig. 1.



a. Aggregations of plaques in human blood, forming the so-called *granule masses* of Max Schultze. *b*. Disintegration of the plaques, with fibrin filaments and mucin-like spheres adhering to the mass. *c*. Isolated plaques.

the agglutination of numerous small bodies of uniform size. At the edges, isolated or partially free corpuscles can usually be noticed. The fibrin filaments, as coagulation proceeds, seem to radiate from the masses as centres. This remarkable conglutination of the plaques and a tendency to undergo rapid change have retarded greatly the recognition of the corpuscles as veritable elements of the blood. Observers have, as a rule, seen in them nothing more than a granular débris of no special significance. Nor is this to be wondered at, as they so quickly undergo change that the clusters, in the course of a short time, really present the appearance of disintegrating protoplasm (Fig. 1, *b*). The size and shape of the groups are most variable; the more abundant, as a rule, the plaques the larger and more numerous the aggregations; the smaller ones, composed of two or three plaques, may not equal in size a red corpuscle, while the larger ones may be ten or fifteen times this size. A tendency to adhere to foreign particles is very noticeable, and they will collect in numbers upon a fine thread of cotton or linen. In the normal blood of the adult the plaques are not very numerous, and so do not form very large collections. In some individuals, however, in health the groups are always of considerable size. There are conditions of the blood in which, from some cause, the attraction of the plaques to each other appears diminished, and instead of forming large masses, they adhere to the slide either isolated or in scattered groups of from two to ten in number (Fig. 1, *c*). Possibly this may be an accident of preparation, but I am inclined to think it not, from the fact that I have noted it in cases of malignant fever, smallpox, scarlet fever,—the very states in which the normal process of nummulation of the red corpuscles may be so altered that the cells aggregate into compact clumps. In fact, the red corpuscles and the plaques in normal blood have each their peculiar mode of aggregation, the red in series and the plaque in masses. I have never seen any appearance which would suggest that the plaques have the slightest tendency to adhere by their flat surface, and to form rouleaux, as the red. It will be found too, I think, that just as there are, apart from modes of preparation, peculiarities which interfere with the normal nummulation of the red, so there are conditions in which the plaques present variations in their usual method of aggregation.

It was a consideration of the relative size of the masses, and the impossibility of their passing through the capillaries, which led me in 1873, in University College Laboratory, London, to the discovery of their corpuscular nature; and it was found that while in the blood of the young rat, when withdrawn, the masses were numerous and large, in the bloodvessels the collections, as such, never occurred, but innumerable small corpuscles, similar in character to those seen at times so plainly at the edge of the masses.

To study the plaques properly, the blood must be allowed to pass directly into a solution which, while preventing conglutination, does not materially alter their form or characters. Or they may be, perhaps, more satisfactorily observed while still within the bloodvessels.

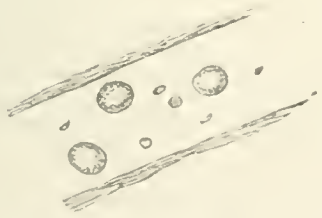
Various solutions have been employed by different observers. Zimmerman, whose study of these corpuscles was really very complete, allowed the blood to flow directly into a solution of a neutral salt which prevented coagulation, and then in the supernatant fluid he found small colorless cells in extraordinary numbers. I have repeatedly confirmed this observation in the case of horses' blood, when demonstrating the common experiment of preventing clotting, by letting the blood flow into sodium sulphate. The plaques abound in the clear serum, and if the solution is not too concentrated they are very little altered. In using the hæmatocytometer (Gowers), the sulphate of soda with which the blood is mixed acts in the same way, although in the counter it is more common to find the plaques aggregated than isolated, but the individual plaques are unusually distinct. More suitable solutions for histological purposes are osmic acid 1 per cent., the fluids of Pacini, modified by Hayem, and of Bizzozero. Pacini's solution, as used by Hayem, consists of sodium chloride 1 part, sodium sulphate 5 parts, corrosive sublimate 0.5 part, in 200 of distilled water. Bizzozero employs the ordinary salt solution, ¾ per cent., to which methyl-violet has been added. Afa-

[1] I did think of suggesting the word *disklet* as very suitable for these *little disks*, but I had not the courage to add another to the already long list; moreover, as my own name has been used in connection with these bodies, I felt absolved from further sponsorial duties on their behalf.

nassiew[10] recommends strongly the use of salt solution to which 0.5 per cent. of dried pepsin has been added, and 1 to 1000 of methyl-violet, and a small amount of sublimate or carbolic acid to prevent decomposition. I find that the Pacini fluid and osmic acid answer every purpose, and in them the plaques undergo very little change. The examination is made in the following way: Upon the thoroughly cleansed finger-pad a single drop of the solution is placed, and with a sharp needle, or pricker, the skin is pierced through the drop, so that the blood passes at once into the fluid, which is then received upon a slide and covered. The withdrawal of the corpuscles into the solution prevents the plaques from aggregating, and they remain as isolated and distinct elements. The amount of blood allowed to flow into the drop must not be large, and should be quickly mixed. In many respects the most suitable medium is osmic acid, ½–1 per cent., which has the advantage that by its use permanent preparations can be obtained. The various cells are at once fixed, and the plaques are, by this method, very well preserved. Good preparations may also be obtained by spreading rapidly a thin film of blood on a top cover, and then placing it at once in the osmic acid. Still another method is to dry the blood in the thinnest possible layer, and then fix with osmic acid or stain with methyl-violet, and mount in balsam. Kemp recommends placing the blood drop on a top cover, rapidly moving it about, and then washing off the superfluous blood with salt solution. The plaques adhere to the cover, while the red cells are swept away. The cover is then quickly put in osmic acid.

For the study of the plaques in the circulating blood, the mesentery or omentum plate must be employed, and a similar measure adopted to those used in the study of the circulation of the blood in mammals. The half-grown rabbit, white rat, or guinea-pig will be found best adapted for this purpose. The chief difficulties arise from the amount of fat which, in some instances, obscures the vessels, and the rapidity of the current may render it hard to see the plaque. But when, as in the omentum, a small transparent vessel is found, in which the current is slow, then with the red and colorless corpuscles the smaller plaques are also seen (Fig. 2). In Bizzozero's paper, and in the recent communication of

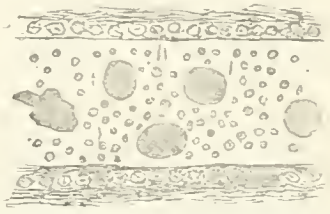
Fig. 2.



Plaques in circulating blood, omentum of guinea-pig. 18, 1, '83.

Eberth, full directions are given for the study of the plaques in the circulating blood. They are modifications of the original Sanderson-Stricker method (*vide* Sanderson's *Handbook*), which answers every purpose in the case of the guinea-pig, the omentum of which is a peculiarly suitable object. In the rapidly flowing current no plaques are distinguishable, but when the stream is slow they can be seen here and there in the still layer with the white corpuscles, while if the current becomes very feeble they tend to collect at the periphery with the leucocytes. In a small venule, where the stream is slow, and only a few corpuscles passing, the best opportunity is afforded of seeing the plaques. They may be well studied within the vessels in the recently killed animal, or in man, in portions of tumors, etc., recently removed. The subcutaneous tissues of the newborn rat afford perhaps the very best situation in which to study the plaques while within the vessels. The rat is killed with a snip of the scissors through the spine, and then portions of the mucoid connective tissue spread thin upon the slip, either with or without saline solution. In the thin transparent vessels, the plaques are very distinct, and they remain unchanged for hours. Perhaps there is no better mode of studying these forms, as the thin walls offer no impediment to the view, and the plaques are in their natural medium. In the subcutaneous tissue of man I have had several opportunities of examining the plaques in this way, and Fig. 3 represents

Fig. 3.



Plaques in small artery from subcutaneous tissue of scrotum of man, one hour after removal. Case of elephantiasis. 20, 11, '85. They had collected in numbers at this portion of the vessel.

them in a vessel of the tissue of the scrotum an hour after its removal. In the smaller vessels of the pia mater they may also be seen.

General Characters and Structure.—The plaques are minute elements circulating in the plasma with the other corpuscles, and possessing such specific and distinct

Fig. 4.

Isolated plaques in normal blood. Osmic acid 1 per cent.; one-twelfth im. (Zeiss). *a*. Red corpuscles. *b*. A white corpuscle. *c.c.* Plaques with slightly irregular margins. *d*. Plaque with faint granular appearance in centre as if nucleated.

characters that they must be reckoned among the normal histological constituents of the blood.

The plaque is colorless, with a uniform grayish-white appearance, homogeneous or very finely granular, and presents no differentiation in the delicate protoplasm of which it is composed. So far as my observation goes, it is always colorless.

The *size* is variable. In man they may be said to measure from 1.5 to 3.5 micromillimetres, or from about one-sixth to one-half the size of a red blood-corpuscle. The majority of them are from 1.5 to 2.5 *u*. Oc-

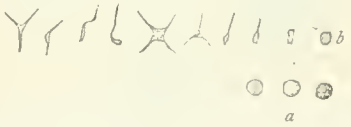
casionally a plaque may be seen measuring as much as 5 micromillimetres, but this is exceptional. When they are abundant, remarkable gradations in size may be measured between the smallest and largest forms. They have not the constancy in size of the red corpuscle. I think in man, when very abundant, the average size is slightly less than when they are not so numerous. They are stated to bear in size some relation to the size of the red corpuscle of the animal, but we need a more elaborate series of measurements to determine this. In the white rat they are slightly smaller than in man.

The shape of the normal plaque, as seen in the vessels, is a circular disk with smooth, well-defined margin. When slightly tilted it has naturally an ovoid appearance, and when seen in profile is as a narrow, straight rod or staff. Whether they are flat disks, or biconcave, as like red corpuscles, is really not easy to determine. I should say that the majority do not show a bilateral depression, but forms are sometimes seen which resemble in outline very closely a miniature biconcave disk. Alterations in form quickly occur when the blood is withdrawn; but the natural shape, as seen in the vessel, and also, as a rule, in Pacini's fluid, or osmic acid, is as here stated.

The plaque consists of a homogeneous, smooth, structureless protoplasm of a light gray color. In the unaltered condition no nucleus can be seen, but in the fluids used to conserve them the appearance is in the form of a collection of distinct granules, which may look like a nucleus. This will sometimes, in dried preparations, stain a deeper color in the hæmatoxylon than the remainder of the plaque, and it is regarded by Hayem as a nucleus.

Changes in the Plaques.—Outside the vessels the plaques are characterized by two peculiarities which have been a serious hindrance to their recognition as special elements of the blood, viz., the rapidity with which the protoplasm alters the tendency to adhere to one another and to any substance with which they may come in contact. Within the vessels, however, they do not seem to be more prone to rapid decay than the red or white corpuscles, and in the young rat, kept at ordinary

Fig. 5.



a

a. Changes in appearance of the plaque, due to separation of its protoplasm into a darker and clearer portion. *b*. Alterations in form of plaques examined in blood-serum and watched for three hours.

temperature, I have seen them in the vessels quite distinct and clear twenty-four hours after death. So also I have found them unaltered in the vessels of the pia mater in man, some hours after death; and, as I shall have occasion to show in the third lecture, they may in masses remain apparently unchanged for some time.

The substance composing the plaque appears homogeneous when first seen, but soon a change occurs, and the plaque presents a darker, more highly refractile portion and a clearer substance. Usually this darker portion is peripheral, but it may be central, and then is not unlike nucleus. It is as if a material had separated from the stroma or bases of the plaque, just as the hæmoglobin of the red corpuscle may do under the influence of reagents. The plaques undergo the most curious changes in shape, to the study of which I devoted much time in 1873. Within the vessels they are circular, but when at rest they not unfrequently become ovoid or prolonged, or slightly angular and crenated. These angular processes may increase greatly in length, and give a stellate appearance to the plaque. The changes in form are very fully described and figured in my original paper. These alterations are probably induced by changes in the external conditions, and are not amœboid or vital in character. The addition of serum to the blood drop, and the examination in a warm stage, afford the best means of studying the variations in form. Even within the vessels they may show these changes, and in the course of a few hours alter in a remarkable manner so as to be scarcely recognizable.

A very common change is the separation from the plaque of a mucin-like (?) material in the form of a pale sphere, which may remain attached to the cell or separate from it. When aggregated in masses, as in a slide of fresh blood, this process can be readily seen at the margin, and the field in the vicinity may be covered with these pale globular bodies. They result, doubtless, from the separation of some material from the substance of the plaque, and are identical with the spheres so often seen attached to spermatozoa in urine.

Fig. 6.

Alterations in the plaque while within the bloodvessels, sketched after three hours on the warm stage. 6, 4, '73.

In marked contrast to the stability of the plaques within the vessels is their rapid disintegration when withdrawn. At a low temperature this does not occur so quickly, and of this Hayem took advantage in his researches; but at the ordinary temperature, and in the examination of the blood without any reagent, the plaques unite with each other and undergo rapid change—a viscous metamorphosis, as Eberth[11] terms it. As I shall have occasion to point out, this is associated with the separation of fibrin which seems to arise first about the groups of plaques, as Ranvier noted in 1873, and he spoke of these little granulations—*grains sarcodique* of Vulpian—as centres of coagulation.

Action of Reagents.—This has already been referred to in the consideration of the best modes of examining and preserving the plaques. Water reacts upon them as upon the colorless elements, causing a swelling of the protoplasm and a rapid production of the pale spheres already described Dilute acid and saline solutions act in the same way. In three-fourths per cent. salt solution, or in the sodium sulphate solution for blood counting, they retain their outlines and do not so rapidly coalesce and disintegrate. Dilute potash solution causes speedy dissolution.

The aniline dyes stain the plaques as other protoplasmic bodies, and Bizzozero's fluid has the advantage of

tinting them and making them more distinct. In preparations by Ehrlich's method, the tint of the central portion of the plaques may be deeper than the periphery. Carmine appears to have no effect. For permanent preparations the dry method is the best, and they may be stained with hæmatoxylon, fuchsin, Bismarck-brown, or methyl-violet. The blood in osmic acid may be kept for some days if the cover-glass is carefully surrounded with paraffine. A solution of corrosive sublimate 1 : 1000 is also suitable for their preservation. The precise chemical composition of the plaques has not been determined, but from the similarity in most points of their reaction and behavior with dyes to the nuclei of cells, we may suppose their composition to be of a similar nature.

The Number.—The numeration of the plaques presents serious difficulties, on account of their extraordinary adhesiveness and the numbers now given, may be subject to revision when better methods are devised. In my own case the numbers range from 250,000 to 300,000 in the cubic millimetre, figures which correspond to those of Hayem. Full-blooded, plethoric individuals have rarely more than 250,000 per cubic millimetre. The variations in the same individual may be considerable during the day, and they seem increased after a full meal. Age has an important influence—in the infant and young child the number may be double that of the adult. In the newborn of all the mammals I have examined they were specially abundant. In advanced age they seem more numerous, particularly if the individual is weak and debilitated.

Until more extensive and more reliable counts are announced, we may say that the plaques in health number between 200,000 and 300,000, the ratio to the red being about 1 to 18 or 20, and to the white corpuscles 35 or 40 to 1. The numeration of the plaques is a much more tedious matter and requires far more patience than counting the red and white corpuscles. Rapidity is essential to success. I find the *compte globule* of Malassez rather more adapted than the Gower's apparatus, as the mixture can be more thoroughly and quickly made. The blood is got from a deep puncture and aspirated into the tube of the Potain mixer and then the Pacini's fluid or osmic acid is immediately drawn in. Frequently it will be found that, with the greatest care, the plaques have run together and the process must be repeated. It is essential, too, in the first aspiration of the blood, to reach the line at once; if the blood column goes beyond, it must be discarded and a fresh attempt made, as the time lost in accurately adjusting the column would be sufficient to allow the plaques to coalesce.

The Plaques in Disease.—In health the plaques are relatively scanty, and they aggregate into such small, scattered groups, that they do not necessarily excite the attention of the student, but every constant observer of the blood in states of disease must have marvelled again and again at the extraordinary number and size of the granule masses met with in certain cases. Led away by their constancy and peculiar character, writers have regarded them as specific and distinctive elements in certain affections (leukæmia, phthisis). From the able and comprehensive paper of Riess to the more recent one of Afanassiew, there have been very many observations on the frequency and significance of these bodies in disease, but we still lack careful and painstaking enumerations in the various acute and chronic diseases. A rough estimate of their increase or diminution may be made by any one well accustomed to their observation, but for scientific accuracy the hæmatocytometer must be used, and means must be devised to overcome the present serious source of error.

My own observations have been very numerous, and I have for years been in the habit of noting the paucity or abundance of these elements. In the absence, however, of systematic and reliable counts the notes are not worth much. The general results I may state as follows :

1. The plaques are increased in all chronic wasting maladies—cachexiæ—with or without fever.

This is very evident by examining in rotation the various patients in a hospital ward. The debilitated individuals, the subjects of phthisis, cancer, or other chronic wasting diseases, present a marked increase. In phthisis the number per cubic millimetre may reach 500,000 or more, and the ratio of the plaques to the red may rise as high as 1 to 5.

2. In acute sthenic fevers the plaques are not increased in the early stages, but as the disease advances, and the patient becomes weaker and more debilitated, the increase is usually marked. This is well seen in typhoid fever, in which the number of plaques during the first week may not rise above normal, while in the third and fourth week there is usually a notable increase.

3. In the so-called blood diseases the number of the plaques is variable. Many observers have remarked the great numbers in certain cases of leukæmia, but in others the increase is not apparent. So, also, in lymphatic anæmia. In some cases of Hodgkin's disease I have seen the plaques in extraordinary numbers. In profound anæmia the plaques may be very scanty. I have long noted, in cases of pernicious anæmia, that the clusters of plaques may be almost absent, or much more scanty than in health.

Distribution of the Plaques in Animals.—So far as our present knowledge goes, the plaques are constant constituents of the blood in mammals, and, with the exception of slight variations in size, the general features are the same in the various orders. My observations on this point have not been extensive, but I can speak of their presence in the blood of the dog, cat, mouse, guinea-pig, rabbit, sheep, ox, horse, pig.

They also occur in the ovipara, and here they are nucleated. Kemp states that in the blood of oviparous animals there is a nucleated corpuscle which is physiologically analogous with the plaque in the blood of mammals, and which behaves like it when the blood is drawn.

Origin.—Various explanations have been given to account for the origin of the plaques, and Kemp enumerates no less than seven different views. Perhaps the most prevalent idea, particularly among clinical physicians, is that they result from the disintegration and degeneration of the blood corpuscles, especially the leucocytes. This is really not unnatural, for the irregular clumps of plaques in blood examined in the ordinary way look very like—and, indeed, are—protoplasmic débris. But we know of no such process of rapid disintegration in the colorless corpuscles, which are remarkably stable elements, and even in their death and

decomposition never, so far as I can make out, produce structures similar to the groups of plaques. The fact that the formation of the *granular débris*, as the groups of plaques are called, can be prevented by drawing the blood directly into a drop of osmic acid (or Pacini's fluid), in which the elements are fixed instantly, should be sufficient to convince the most sceptical; but if it does not, the study of the plaques in the newborn rat will satisfy, I think, the most obdurate. The abundance and large size of the groups of plaques in a blood drop examined in the ordinary way, and the ready demonstration of the individual elements in the blood-vessels of the subcutaneous tissue, and the identity of these with the corpuscles at the edges of the groups, and with those in the osmic acid drop, render the conclusion irresistible that we are dealing with something quite independent of the colorless corpuscle.

I am unaware of a single observation corroborative of the view that the plaques result in any way from the degeneration of the red corpuscles. We need not consider the views that the plaques represent fibrin particles, or are depositions of globulin.

A majority of observers regard the plaques as independent elements in the blood, others agree with Hayem that they are young red corpuscles—hæmatoblasts—and a further discussion of this point will be best considered in the next lecture, when I speak of the regeneration of the corpuscles.

Historical.—I do not propose to enter into the literature of the blood plaque. This has already been done very fully by several German observers, and quite recently by Kemp, whose paper in the "Studies from the Biological Laboratory of Johns Hopkins University," will be readily accessible to all American and English students. In my original paper I have also given pretty fully the older references. We may conveniently divide the work which has been done in this department into three periods The first embraces the time prior to the publication of Hayem's researches in 1877. The masses had been observed frequently, and the corpuscles had been studied, notably by Donné, Zimmerman, and Max Schultze. In 1874 I demonstrated the corpuscular nature of the granule masses, and showed that the bodies of which they were composed "were present as separate elements in the vessels, and showed no tendency to adhere together." In 1873 Ranvier[9] called attention to their possible association with fibrin formation. Riess and others had called attention to their increase in disease. The second period dates from the publication by Hayem, in 1877–78, of his researches, and to him really belongs the credit of establishing the histological position of these corpuscles as constant blood elements. It is curious that his careful observations met with very slight recognition among physiologists. The interest in the question had almost died out when, in 1882, Bizzozero, of Turin, published an exhaustive article in Virchow's *Archiv* upon the *Blutplattchen*, and their relation to fibrin formation. From this we date the third period, during which there have been already published eighteen or twenty essays, chiefly in Germany, and the most intense interest seems to have been aroused in the subject. The weight of histological evidence is strongly in favor of the views which I have here laid before you, but there still remains the greatest diversity of opinion as to the function of these bodies in blood development, and of their relation to the formation of fibrin, and upon these questions I shall have more to say in the second and third lectures.

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ORIGINAL ARTICLES.

ON THE EMPLOYMENT OF THALLIN IN FEBRILE AFFECTIONS.

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Tetrahydroparachinanisol, or tetrahydroparamethyloxyquinolin, a hydrate of parachinanisol, was first synthetically prepared by Prof. Skraup, of Vienna, in 1884, and named by him "thallin," on account of the green color which its salts produce with the perchloride of iron (θαλλος, a green shoot).

It is a light powder of a pale yellow or almost white color, with a pleasant aromatic odor, resembling greatly that of the trailing arbutus. Its taste, however, is bitter, pungent, and disagreeable.

It is easily soluble in water, with difficulty in alcohol, and not at all in ether. The reaction of its solution is strongly acid. It is usually employed in the form of the sulphate or the tartrate of thallin, although other salts exist. Its chemical formula is $C_{10}H_{13}NO$. The reference to the paper containing a detailed description of the method of its manufacture will be cited below.

Von Jaksch was the first to experiment with it upon animals, and to appply it subsequently in medicine. Following him, various other clinicians made researches with the new drug, and reported their results, but up to the present time there has appeared, I believe, no published account of any clinical experiments with it, made either in this country or in Great Britain.

It was while watching its effect on fever, when given by v. Jaksch in the clinic of Nothnagel, before he had made his discovery public, that I first came to believe in the value of the drug as an antipyretic. And it is with the desire of bringing it more prominently and more favorably before the profession, that the investigations herein detailed have been made, and this communication written.

The first announcement from v. Jaksch was made to the *Wiener k. k. Gesellschaft für Aerzte*, in the fall of 1884, and published by him later. He followed this by several other papers on the same subject.

He shows that thallin is very similar in its effects to antipyrin, although in very much smaller doses; but claims that it is more rapid in its action, although the fall of temperature produced lasts for a shorter time. It is also less dangerous, inasmuch as it never causes collapse, as does the latter drug. Both agents may produce profuse sweating; and chilliness or rigors often occur with the subsequent rise of the temperature after the action of the medicines has ceased.

These conclusions he reached by giving thirty cases of various diseases, accompanied by fever, alternating doses of antipyrin and thallin. His investigations, throughout, were most careful and thorough. The usual dose of thallin as administered by him is four to fifteen grains, given at one time, and repeated in one or two hours if no effect is produced. The degree of reduction of temperature obtained varies somewhat, and the duration of the lowered temperature lasts usually but a few hours.

He states that it can be detected in the urine by the dark red color which is produced on testing with the perchloride of iron. Before testing, too, a peculiar greenish shimmer may be seen at the edge of the receptacle.

Alexander, after experimenting on fourteen cases, confirms the favorable report of v. Jaksch. He gives the medicine in the same doses whenever the fever exceeds 102° F. This usually reduces the temperature to 101° or 101.5°, where it remains for two or three hours. On its again reaching 102° the dose is repeated, the patient receiving the drug four or five times in the course of the day. Very profuse perspiration is often produced, especially in cases of phthisis.

Huchard finds the temperature always reduced by four to twelve grains of thallin, with but slight accompanying perspiration, although shivering occurs frequently. He believes that it probably lessens the fever by acting on the thermogenetic centre.

Dujardin-Beaumetz, while admitting that thallin is the most powerful of antipyretics, considers it a poor member of the materia medica. He adopts the opinion of Brouardel and P. Loye that it reduces the temperature by diminishing the respiratory power of the blood, and destroying the red blood corpuscles; and believes that antipyrin acts in an entirely different manner—*i. e.*, on the thermogenetic centre—and is much to be preferred.

This is the only really condemnatory criticism of the new antipyretic of which I am cognizant.

Guttmann's experience agrees with that of v. Jaksch, but he considers thallin to have many unpleasant secondary effects. Its action, too, he considers of too short duration, and he therefore gives the preference to antipyrin.

Ewald, on the other hand, says that the drug is safe, sure, and has no disagreeable secondary effects. He administers it in doses of four grains.

Landenberger reports seventy cases of various febrile affections to which he has administered the medicament. He gives it in from four to fifteen, usually eight grain doses, and in this way obtains a fall of temperature of even 5° or 7° F., accompanied by profuse sweating, but never by collapse or cyanosis. The effects continue five or six hours, before the mercury rises again. He usually administers it in wafers, to avoid the unpleasant taste, and has the temperature recorded hourly during the day, and every two hours at night.

He finds it much superior to antipyrin, kairin, and quinine, especially in reducing the temperature of erysipelas. It is also very efficacious in phthisis, but is apt to produce too profuse perspiration.

Stintzing, in employing thallin in Ziemssen's clinic, finds four grains sufficient to cause a fall of temperature of 1.5° to 3° F., lasting for three or four hours. The mercury then rises until it reaches the former or even a greater elevation. There is always more or less sweating after its use.

Mingazzini obtained better effects from a dose of eight grains than from smaller amounts. He never observed vomiting, collapse, or cyanosis, but sweating seldom fails to appear. He prescribes it either by the mouth, hypodermatically, or in clyster, and produces a fall of temperature equalling 1.5° to 4.5° F., and lasting four to eight hours.

Jaccoud has made a very careful series of investigations on seventeen cases. His average dose is six to eight grains, and his maximum fifteen grains, administered in wafers. The drug was always given at 11 A. M., and the temperature recorded hourly until 6 P. M. He believes that the initial dose should always be small, of three or four grains or less, since the effect appears to depend more upon the individuality of the patient, than upon the actual amount of the drug employed. The same observation is true of antipyrin. He finds that the temperature falls 3° to 9° F., and, having once reached its lowest point in one and a half to three hours, at once begins to rise again, there being no persistence of a minimum temperature. In two to four hours from the time the mercury begins its reascent, it attains its original elevation. Copious perspiration attends the reduction of the fever, and with the subsequent increase of the latter there is a sensation of chilliness and sometimes a rigor. His conclusions are that the salts of thallin are much to be preferred to antipyrin. With the latter drug the dose is much larger, the reduction of temperature not so great, and of no longer duration, the sweating more profuse, and chilliness and rigors more frequent. Then, too, there exists the disposition to the occurrence of the antipyrin exanthem. He considers that the liability to the development of collapse is equally great with both antipyrin and thallin. But the danger is much greater and more insidious from the former drug. Having once established the amount of thallin which can be given to a particular case, this dose can be employed without fear for as long a time as may be desired. But in the case of antipyrin the danger is renewed with every administration of the remedy. He has found by actual experience that a dose of antipyrin borne well on one day, may on another cause symptoms of collapse.

Pavay has employed thallin in seventeen cases and with a result almost diametrically opposed to that obtained by Jaccoud; much preferring antipyrin. Like v. Jaksch, he gave antipyrin and thallin alternately in a series of cases, and finds that of the two thallin produces much the greater sweating when eight grains of it are given. But it requires forty-five to sixty grains of antipyrin to lower the temperature to the same degree. The reduction of temperature after antipyrin lasts much longer, and rigors and collapse are not so likely to occur.

He disputes the statement of Dujardin-Beaumetz, and has repeatedly examined the blood without finding any alteration of the red blood-corpuscles after the use of thallin.

He gives four grains every quarter to half hour if the temperature exceeds 102° F. In one to two hours a fall of 3° to 5° F. is almost always obtained. He has endeavored in vain to check the profuse perspiration by administering one-sixty-fifth grain of atropia simultaneously with the antipyretic. After a dose of twelve grains of thallin he has observed collapse and more or less cyanosis. He agrees with Jaccoud that the drug is not to be invariably recognized in the urine by means of the perchloride of iron—a proof that it is largely consumed in the system.

Sara Welt, on the other hand, has never seen true collapse follow its use. The patient, although perhaps appearing somewhat cyanosed, feels well, and there is no diminution of strength. She has made in the medical clinic of Eichhorst, in Zurich, careful observations on the effects on the system of both thallin and antipyrin, administered to a large number of cases. Four grains of thallin are given hourly until apyrexia is produced. There is less profuse sweating and less frequent vomiting after the use of thallin than follow antipyrin, but chilliness or rigors occur more frequently.

Ehrlich and Laquer, in a recent paper on the employment of thallin in typhoid fever, advocate an entirely new method of administering it. They admit that thallin has two disadvantages: 1st. Its action, though rapid, is too transient. 2d. Hyper pyrexia with rigors is apt to follow the cessation of its effect on the system.

Antipyrin, on the other hand, has a more gradual fall of temperature, and a more lasting effect, with a slower reascension of the temperature curve. This is because thallin is absorbed with great rapidity, often affecting the system in ten or fifteen minutes, and its elimination begins in one-half to one hour. Antipyrin, on the contrary, is absorbed more gradually and does not appear in the urine until three hours after its administration (Maragliano).

Thus are explained the disadvantages of thallin, and also the *much greater danger* accompanying the exhibition of antipyrin claimed by Jaccoud, and fully agreed to by Ehrlich and Laquer.

They have limited their article to their experience with nineteen cases of typhoid fever, to which they gave thallin in small doses frequently and persistently repeated. Their method is as follows: Thallin tartrate is given in solution every hour during the day, and every two hours at night, and the temperature recorded every two hours. Six-tenths to one grain hourly is the initial dose, which, after two or three hours, is increased by one-tenth to one-eighth grain, and again by the same amount in two or three hours more.

In this manner the dose is gradually increased until a reduction of temperature of 1.5° to 2.5° F. is obtained, without, however, attempting to procure complete apyrexia, and carefully avoiding any unpleasant secondary symptoms. In this way they are enabled to escape entirely all rigors and excessive perspiration. They claim also that the subjective symptoms of the disease, especially those affecting the sensorium, are improved.

They have never observed collapse, and but rarely chilliness, which was caused by too large a dose. Vomiting occasionally occurs, due to the very unpleasant taste. As soon, therefore, as they have once determined the proper dose for a certain patient, they order the medicine in pill form. The digestive organs and the kidneys were never affected, and the exanthem of antipyrin never observed. Occasionally slight sweating takes place, but without being annoying to the patient.

Though not prepared to make a positive claim to that effect, yet they are led to conclude from their observations that thallin probably has a specific action on typhoid fever, often ameliorating the symptoms and appearing to hasten recovery.

There are several other articles on the subject to which I could not obtain access.

There will be found below a list of references to the literature, which I have tried to make complete.

The abstracts of the views of the various investigators quoted above, exhibit a considerable difference of opinion. Dujardin-Beaumetz is the only one who really condemns the new antipyretic. Pavay thinks that it can never take a place equal to that of antipyrin; and Guttmann also prefers the latter drug. But, with these exceptions, the general verdict is that thallin is a most valuable, prompt, and safe antipyretic. The majority also claim that there is less profuse sweating following the use of thallin, and that the medicine is much safer and more rapid in its action than antipyrin. The weight of opinion, however, goes to prove its only disadvantage to be that the reduction of temperature after its employment does not last so long as that produced by antipyrin; but even this is contested by many of the writers mentioned.

I report below a series of cases illustrative of the value of thallin as an antipyretic. In most of these the drug was administered in a single dose, usually of four grains. The variety of diseases is unfortunately, but unavoidably, not so great as could be desired. The temperature was, when possible, recorded every hour; often this was not possible. It is not, as a rule, quoted here for those days upon which no antipyretic was given.

Case I.—Phthisis with hectic and night sweats.

Nov. 19, 1885.—7 P. M., 103.4°; 8, 103.2 (4 grains of thallin sulph.); 9, 99.8; 10, 100.6; 11, 100.8; 12, 101; 1 A. M., Nov. 20th, 100.6.

27th.—8.30 P. M., 102° (4 grains of thallin sulph.); 9, 100.2; 10, 99.8; 11, 99.4; 12, 99.

28th.—1 A. M., 98.4°; 2, 98.2; 3, 98.6; 4, 99; 5, 99.2; 6, 99.

Dec. 9.—7 P. M., 102.4°; 9, 101 (4 grains of thallin sulph.); 11, 100.6.

10th.—1 A. M., 100°; 3, 99.4; 5, 99.8.

11th.—7 P. M., 102°; 9, 101.8 (4 grains of thallin sulph.); 11, 100.2.

12th.—1 A. M., 99.4°; 3, 99; 5, 98.8.

14th.—9 P. M., 101.4° (4 grains of thallin sulph.); 10, 100.8; 11, 100; 12, 99.

15th.—2 A. M., 99.4°; 3, 98.8; 5, 99.6; 6, 99.4.

27th.—2.30 P. M., 104.2° (4 grains of thallin sulph.); 3.30, 101.4; 4.30, 99.8; 5.30, 99; 6.30, 99.2; 7.30, 99.8; 8.30, 100.2; 10.30, 101.4.

Profuse sweating, usually followed the administration of thallin to this patient. For several days, however, she was very positive that she slept better and felt better after the use of the medicine. Later in the disease, the subjective symptoms were not so favorable.

Case II.—Phthisis with hectic and profuse night sweats. Man, aged twenty.

Nov. 20, 1885.—8.30 P. M., 103° (4 grains of thallin sulph.: at 8.40, copious perspiration, but not so great as usual); 9, 102; 9.30, 100.6; 9.50, 100.

For three nights this patient took four grains of thallin with excellent results. Slept better, felt better, and perspired less than usual.

Subsequent trial of the medicine seemed to increase the sweating. A short time after taking the drug he was always conscious of a tingling, burning feeling throughout his whole body.

Case III.—Phthisis with night sweats. Woman, aged twenty.

Nov. 28, 1885.—8 P. M., 102° (4 grains of thallin sulph.); 10, 100.4; 11, 99.6; 12, 99.

29th.—1 A. M., 99°; 2, 98.4; 3, 98.2; 4, 98.4; 5, 98.4; 6, 100; 7, 100.

30th.—8 P. M., 102.4° (4 grains of thallin sulph.); 9, 101.2; 10, 101; 11, 99.6; 12, 98.2.

Dec. 1.—1 A. M., 98°; 2, 98; 3, 99.2; 4, 99.4; 5, 99.8; 6, 99.2.

2d.—7 P. M., 102° (4 grains of thallin sulph.); 9, 100.4; 10, 100.6; 11, 100; 12, 99.2.

3d.—1 A. M., 98.8°; 2, 98.4; 4, 99; 6, 99.2.

14th.—9 P. M., 102.6° (4 grains of thallin sulph.); 10, 101.4; 11, 100; 12, 99.8.

15th.—2 A. M., 99.2°; 3, 99.8; 4, 99.4; 5, 99; 6, 100; 7, 102.

26th.—9 P. M., 102 2° (4 grains of thallin sulph.); 10, 101.8; 11, 100; 12, 99.6.

27th.—1 A. M., 99.2°; 2, 98.8; 3, 100; 4, 100.4; 5, 100.3; 6, 100.8.

Jan. 2, 1886.—9 P. M., 102 6° (4 grains of thallin sulph.); 10, 100.4; 11, 99 4; 12, 99.

3d.—1 A. M., 99.2°; 2, 99.6; 3, 100.8; 4, 100.4; 6, 100.8.

Case IV.—Pyopneumothorax; septic. Man, aged twenty five.

Dec. 2, 1885.—9 P. M., 103.4° (4 grains of thallin sulph.); 11.30, 98.4 (profuse sweating and some chilliness and depression of strength).

3d.—3.30 A. M., 101°; 6, 101; 9, 103.6 (4 grains of thallin sulph.); 12.15 P. M., 100.2 (not much perspiration, but subjective symptoms not improved; 2.30, 101; 4.30, 101.8; 5.30, 102.

5th.—8 P. M., 104.6° (4 grains of thallin sulph.); 10, 100.8.

6th.—12.30 A.M., 100°; 2, 101.6; 6, 101.6; 7, 103.

23d.—9 P. M., 104.4° (4 grains of thallin sulph.); 10, 101.2 (free perspiration); 11, 100.4; 12, 100.

24th.—1 A. M., 100°; 2, 99.6; 5, 101.2; 6, 102.

Jan. 14, 1886.—9 P. M., 102.6° (4 grains of thallin sulph.); 12, 100.

15th.—2 A.M., 99.2°; 3, 99.2; 6, 101.6.

Case V.—Typhoid fever in a girl aged fifteen; eighth day of the disease.

Dec. 4, 1885.—9.30 A. M., 105° (4 grains of thallin sulph.); 10 30, 102.4 (profuse sweat, pulse softer); 11.30, 102.6; 1.30 P. M., 105.6 (sponging with water and vinegar every hour); 6.30, 104.4.

5th.—9.50 A. M., 104.6° (4 grains of thallin sulph.); 10.30, 101 (perspiring; pulse soft); 11.30, 102; 1.30 P. M. 105 (2 grains of thallin sulph.: at 12.45 there was a slight chill, lasting half an hour, evidently ushering in the rise of temperature); 3, 102.6; 5, 105.7 (2 grains of thallin sulph.); 6.30, 103.8.

Case VI.—Phthisis, advanced. Woman.

Dec. 5, 1885.—6 P. M., 101.5° (headache, gave 4 grains of thallin sulph.); 8, 97 (slight perspiration, feels better, and head aches less).

Case VII.—Phthisis with nephritis and pyopneumothorax. Man, aged twenty-one.

Dec. 7, 1885.—5.15 P. M., 103.5° (4 grains of thallin sulph.); 5.45, 102.1 (at 5.40 a sensation of warmth over the whole body, and perspiration commencing; now profuse); 6.20, 100.4 (sweating entirely ceased); 7, 101.

Case VIII.—Typhoid fever (seventh day) with pneumonia. Man, aged forty.

Dec. 8, 1885.—9.30 A. M., 103.4° (4 grains of thallin sulph.); 10.30, 100.8 (profuse perspiration); 11.30, 101; 1.30 P. M., 104.4; 2 30, 104.6 (4 grains of thallin sulph.); 3.30, 101.8 (profuse perspiration); 4.30, 102.1; 6.30, 104.4.

Case IX.—Typhoid fever, second week. Man.

Dec. 18, 1885.—9.30 A. M., 102.4° (4 grains of thallin sulph.): 11, 98.4 (copious perspiration); 2 P. M., 102.5.

Case X.—Phthisis. Woman, aged twenty-four.

Jan. 2, 1886.—9 P. M., 103.4° (4 grains of thallin sulph.); 10, 101.8; 11, 100.2; 12, 99.

3d.—1 A. M., 99.8°; 2, 99.6; 3, 101.8; 4, 101; 5, 101; 6, 103.2.

5th.—8 P. M., 103.4° (4 grains of thallin sulph.); 9, 101.8; 10, 99.4; 11, 98 4; 12, 100.

Case XI.—Phthisis. Woman, aged twenty-eight.

Jan. 5, 1886.—1 P. M., 100°; 2, 100.8; 3, 100.6; 4, 101; 5, 101.4; 6, 102; 7, 102.4; 8, 103.2 (4

grains of thallin sulph.); 9, 101.2; 10, 99; 11, 98.2; 12, 99.2.

Feb. 1.—8 A. M., 100°; 8 P. M., 103.

2d.—8 A. M., 99.8°; 8 P. M., 102.6.

3d.—8 A. M., 99°; 8 P. M., 102.4 (administration of thallin tartrate, $\frac{6}{10}$ grain every two hours, commenced).

4th.—8 A. M., 98.4° ($\frac{1}{10}$ grain of thallin tartrate hourly); 8 P. M., 100.

5th.—8 A. M., 98°; 8 P. M., 103 (thallin stopped at 10 A. M., Feb. 5th, on account of vomiting).

The temperature during the administration of the drug was recorded hourly, and showed a very marked reduction of the febrile temperature. Through an oversight, these records were destroyed.

CASE XII.—Phthisis. Man, aged twenty-two.

Jan 14, 1886.—7 P. M., 104.2°; 9, 104.8 (4 grains of thallin sulph.); 10, 102.2; 11, 101 (considerable sweating); 12, 100.2.

15th.—1 A. M., 99.2° (chilliness); 2, 99; 3, 98.8; 4, 99.8; 5, 101.8; 6, 99.8; 7, 104.

19th.—7 P. M., 104°; 9.30, 106.6 (4 grains of thallin sulph.); 11.30, 99.6.

20th.—12.30 A. M., 99°; 1.30, 99; 2.30, 99; 5.30, 100.2.

CASE XIII.—Typhoid fever, fifth day. Man, aged twenty-one.

Feb. 10, 1886.—8 A. M., 102.4° ($\frac{6}{10}$ grain of thallin tartrate every hour); 10, 102; 12, 103.6; 2 P. M., 104 (dose increased to $\frac{8}{10}$ grain hourly, and at night every two hours); 4, 104.4 (5 grains of thallin tartrate in one dose without effect); 6, 104.6 (the continuous use of $\frac{8}{10}$ grain continued); 8, 104.4; 10, 103.4; 12, 103.6.

11th.—2 A. M., 102.4°; 6, 103.2; 8, 102; 10, 101; 12, 102 (dose of 1 grain of thallin tartrate substituted for $\frac{8}{10}$ grain); 2 P. M., 103.8; 4, 103.2 (8 grains of thallin tart. in single dose, with but little sweating); 6, 102.2; 8, 101.4; 10, 102; 12, 102.2.

12th.—2 A. M., 102.6°; 4, 101.8; 6, 102; 8, 103; 10, 102 (dose increased to 1½ grains); 12, 103; 2 P. M., 103.4; 4, 102; 6, 103; 8, 103.4; 10, 103.2; 12, 103.2.

13th.—2 A. M., 103.2°; 4, 103.2, 6, 103.4; 8, 101.2; 10, 102; 12, 102.2; 2 P. M., 103; 4, 102; 8, 103; 10, 100.2; 12, 102.8.

14th.—2 A. M., 102.6°; 6, 103.4; 10, 101.4 (dose increased to 2 grains); 12, 103.2; 2 P. M., 102; 4, 102.6; 8, 103; 10, 103.4; 12, 102.

15th.—2 A. M., 104 6°; 4, 102 4; 6, 104.4; 10, 103.2 (thallin commenced 8 A. M., Feb. 10th, in continuous doses, now stopped); 12, 102.6; 2 P.M., 103 (20 grains of quinine); 3, 103; 3 30, 103.6; 4, 104; 4 30, 104; 5, 103 4; 5.30, 103; 6, 103; 6.30, 103; 7, 103; 7.30, 102 8; 8, 102; 8 30, 102.2; 9, 102,4; 9.30, 101.8; 10, 101.8; 12, 102.

16th.—2 A. M., 102°; 4, 102.2; 6, 102.2; 10, 101; 12, 103.4; 2 P. M., 103.4; 4, 104 (15 grains of antipyrin); 6, 101.2 (profuse sweat, more so than with thallin on Feb. 11th, *q. v.*); 8, 101.2; 9, 101.4; 11, 101.4.

17th.—10 A. M., 102°; 12, 103.2; 2 P. M., 103; 4, 103.4; 4.30, 104 (cold pack, with a slight temporary reduction of temperature); 8, 102. 4; 10, 103.4; 12, 102.

18th.—2 A. M., 104.6° (15 grains of antipyrin); 4, 102.4 (profuse sweating); 6, 104.4; 8, 102.6; 10.30, 103.4; 11.30, 103.4 (cold pack, lasting 25 minutes with a fall of temperature at 11.55 in axilla, but a rise in the rectum); 11.55, 102.6; 2 P. M., 103.4, 3.30, 104.4 (8 grains of thallin sulph.); 4.45, 100 (profuse sweating and considerable depression); 8, 103.3; 10, 103.6; 12, 102.6.

19th.—2 A. M., 103°; 4, 103.4; 6, 103.6; 7, 104.

This case is particularly interesting as being an example of the greater efficiency of both thallin and antipyrin, as compared with quinine and the cold pack.

CASE XIV.—Pneumonia. Boy, aged twenty-two months.

Feb. 13, 1886.—1 P. M., 102.1° (¾ grain of thallin tartrate); 2.15, 101.4; 4, 103.9.

14th.—12.30 P. M., 103.2° (¾ grain of thallin tartrate) 2, 102.5; 3.15, 103.9 (1 grain of thallin tartrate); 4, 100.8.

CASE XV.—Pneumonia. Boy, aged twelve.

March 12, 1886.—4 P.M., 104.4° (2 grains of thallin sulph.); 5, 103.4; 5.15, 103.8; 7, 105.2.

14th.—8 A.M., 104.4°; 4 P.M., 104.2 (1½ grains of thallin sulph.); 6, 100 6.

CASE XVI.—Pneumonia. Boy, aged nine.

March 21.—4.30 P.M., 106.5° (3 grains of thallin sulph.); 5.30, 104.2; 6.30, 101; 9, 105 (3 grains of thallin sulph.); 12, 100.

22d.—6.30 A.M., 105°; 12.30 P.M., 104.8 (2 grains of thallin sulph.); 2. 102; 4, 105 (2 grains of thallin sulph.); 5, 103 4; 8, 103.

Thallin in both Cases XV. and XVI. not only reduced the temperature greatly while producing only moderate perspiration, but diminished markedly the nervousness and restlessness and the rapid and violent heart's action. The condition of the sensorium was also decidedly improved, and the patients stated that they felt better. Sometimes natural sleep followed the use of the antipyretic. To both patients cold sponging was given hourly without any effect.

An inspection of the records given will show that thallin has been, without exception, efficacious in reducing temperature in the cases reported, and that this has usually occurred within one hour after its exhibition, although at times from two to three hours have been required before the full effect was obtained. Of course, no one claims that thallin or any other antipyretic is invariably successful.

The number of cases observed is sixteen, and the number of times the drug was administered, and the temperature recorded, exclusive of the continuous frequent exhibition of it in Cases XI. and XIII.; equals forty-four. The dose usually given was four grains, which I have generally found sufficient. The greatest reduction of temperature obtained equals 7° F., and the least, 0.4° F; the average being 2° to 4° F. The effect lasted a variable time, in the acute febrile affections not so long as in phthisis. In the latter

disease, a dose of thallin administered in the evening sometimes occasioned a lowered temperature throughout the night. As a rule, it required two to five hours before the mercury reached its former elevation, if, indeed, it did ascend so high. I cannot agree with Jaccoud that the persistence of the minimum temperature equals *nil*. Profuse sweating was frequent, chilliness occurred but seldom, and a slight rigor was seen once. I have never observed collapse, but have seen depression of strength occur in two instances; due, I think, to excessive perspiration. Vomiting was produced in but one case, caused probably by the unpleasant taste of the medicine.

As to the subjective symptoms, some of the phthisical patients especially complained greatly; principally on account of the copious sweating. Others, however, experienced no unpleasant effects, and some felt decidedly better, slept better, and had less profuse perspiration than usual. Two cases perceived a peculiar sensation of warmth throughout the whole body soon after the ingestion of the drug.

My experience with the continuous administration of small doses, is limited to Cases XI. and XIII. Although unsuccessful in the latter, I am inclined to believe that the remedy will often prove very efficacious when given in this manner.

Whether the simultaneous exhibition of atropia in sufficiently large doses will check the profuse perspiration forms not only an interesting clinical question, but bears upon the solution of the problem whether thallin simply causes a reduction of the surface temperature by evaporation, or acts upon the thermogenetic centre.

Thallin is undoubtedly a most powerful antipyretic, and the fact that decided depression of strength occurred twice in thirty-eight exhibitions of this remedy, indicated that it must be given with care to greatly debilitated subjects. It appears to have no particular action on the heart or on the respiration. As a rule, the rapidity of the respiratory movements and of the pulse is reduced at the same time with the degree of the fever, although not necessarily in proportion. With the question concerning the indications for the use of antipyretics in general, or the advisability of using them at all, these investigations have had nothing to do.

Thallin may be obtained wholesale from the Badische Anilin und Soda-Fabrik, Stuttgart, which manufacture it, or from their agents, Schott, Segner & Co., 28 Princess Street, Manchester, England, at a cost there of $2 per ounce. It can be obtained in this city, at the rate of $2.75 per ounce.

In conclusion, I wish to express my hearty thanks to Professor Wm. Osler for the material in his wards in the University Hospital, which he kindly placed at my disposal; also to Drs. F. A. Packard and G. M. Guiteras, for the great aid they have rendered me in preserving careful records of observations made there. Further to Dr. W. T. Learned, for the complete accounts of several cases in St. Mary's Hospital, to which he administered the drug; and to Dr. J. H. Fussell, for several valuable observations made in his private practice.

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RAPID DILATATION OF THE CERVIX UTERI FOR DYSMENORRHŒA AND STERILITY.[1]

By A. H. Goelet, M.D.,
of New York.

In the first place, what class of cases demand this operation?

First, those in which the dysmenorrhœa is constant and severe, and in which stenosis or obstruction of the cervical canal is clearly defined. This includes acute flexion with obstruction. In this class of cases, the most intense pain is experienced before the flow makes its appearance, and gradually diminishes as the discharge is fully established. The explanation of this is, that the cavity of the uterus becomes filled with the menstrual fluid, and contraction occurs to expel its contents, producing the most excruciating agony. After the flow is established, some relaxation takes place at the point of obstruction, and it escapes more freely. When flexion exists, there is a partial straightening out of the canal. The congestion con-

[1] Read before the New York Academy of Medicine, Section on Obstetrics and Diseases of Women, March 25, 1886.

sequent upon this unnatural condition of the organ helps to intensify the suffering, and produces the severe backache and bearing down which precede and follow the flow.

These patients are, usually, extremely nervous and hysterical at all times, and more intensely so as the catamenial period approaches. Their digestion is impaired, and they suffer continually with backache, bearing down, and leucorrhœa. The symptoms, which may be slight before marriage, when the sexual organs are in a quiescent state, become more pronounced and agonizing after, when these organs are called upon to perform their natural functions. In some instances the pain is so unbearable that hypodermatics of morphia are resorted to, and, in time, these patients become habitual opium-takers.

The second class of cases demanding this operation, are those of acute flexion, where the probe can be easily passed after the proper direction of the canal has been ascertained, and no actual obstruction is apparent. The symptoms may not be so severe as in the first class, but the congestion of the uterus which precedes and accompanies the menstrual flow increases the flexion, and pain of the same character is the result. Here dilatation is done to overcome the flexion, and allow the introduction of the intrauterine stem, which serves to straighten the cervical canal, and hold it so, until nature can reëstablish the normal circulation and tone of the organ.

Third. Cases where little or no flexion exists, and there is only slight obstruction, but the passage of the sound through the internal os is attended with pain, and no other cause can be found for the existing dysmenorrhœa and sterility.

Fourth. A class of cases will present the following history, viz.: Previous to marriage the patient suffered little or no inconvenience. Sterility exists, and the dysmenorrhœa, which was at first only occasional and slight, has increased in severity. The sound enters freely without pain until it reaches the fundus, when severe pain is experienced by the patient; and there will be seen exuding from the os an albuminous fluid, in some instances so slight in amount as to be overlooked by a casual or inexperienced observer. This is a mild endometritis or uterine catarrh, which had no existence previous to marriage. But the congestion consequent upon the married state has lessened the calibre of the canal, which was barely large enough before, and has increased the normal secretions from the uterine cavity. As free escape is not afforded, they accumulate and are a source of irritation. Complete dilatation, if maintained, will alone cure some of these cases.

Unmarried women frequently suffer so acutely as to demand dilatation; and when the dysmenorrhœa is constant, persistent, and increases in severity, an examination should be made, and if stenosis or acute flexion exists, dilatation should be unhesitatingly done. I can see no reason why a young woman should be allowed to suffer because she is unmarried, when relief is assured by the operation, and delay may doom her to a life of misery from some incurable uterine disease.

The proper time for dilatation, is from one week to ten days after the cessation of the menstrual flow.

Much can be accomplished by preparatory treatment, in relieving the rigidity and congestion of the parts, by using every second day for a week previous to the operation, a tampon saturated with either glycerine or boroglyceride. A string being attached, it is removed by the patient in twenty-four hours, and the vagina thoroughly irrigated with hot water.

The instrument preferred is the Palmer dilator, modified in the following way, viz.: The blades are made thicker near the shoulder, and the outer surfaces flatter, to lessen the risk of injuring the cervical mucous membrane, and to prevent too much spring; and the shoulder is made more abrupt. The amount of separation of the blades is one inch, at a point corresponding with the internal os, when the instrument is in position. For greater convenience, the thumb screw attached to the handles has been transferred to the left side.

The operation is thus performed: The patient having been anæsthetized and placed on a table in a good light, with the second assistant, who may be a nurse, standing to the right of the patient (left of the operator), the speculum is introduced and the cervix exposed to view. Ordinarily the position on the back with a bivalve or trivalve speculum will answer every purpose; but for cases where much flexion exists the Sims's position and speculum are required. Unless it has been previously done, the sound is introduced first to ascertain the direction of the canal. Then, fixing the cervix, and drawing it down slightly with a tenaculum in the left hand, the dilator, held in the right, is introduced through the external os without much difficulty; but its progress is arrested at the internal os, where the obstruction generally exists. But steady, firm pressure exerted in the proper direction will usually overcome the obstruction, and the beak of the instrument jumps suddenly through the internal os. The shoulder on the blades limits the amount of penetration and prevents injury to the fundus. Where steady and firm, but gentle, pressure does not overcome the obstruction, I prefer to withdraw the instrument and pass successively applicators wrapped tightly with cotton, increasing the size until the dilator can be introduced without force. Harsh means cannot be too strongly condemned. I have never found it necessary to bore the external os with a pair of pointed scissors, and consider it a harsh and unnecessary procedure. Should an exceptional case present in which it was impossible to pass the probe, I should introduce a small laminaria tent and wait.

When the blades have been introduced as far as the shoulder, the handles are gradually brought together, the thumb screw being made to follow along and hold the advantage gained when the hand becomes tired, or the dilatation may be done with the screw alone. The amount of dilatation is usually the full extent of the instrument (one inch), but this depends upon the case. After a few moments the screw is loosened and the instrument is withdrawn. The canal is then cleansed of mucus by means of applicators wrapped with absorbent cotton, and a hard-rubber bougie (Hawk's), No. 13 American scale (20 French), is gently passed, followed by successive sizes up to 18 if the case require it. After this,

an applicator armed with cotton and dipped in liquid carbolic acid is passed through the cervical canal. A tampon of absorbent cotton saturated with the boroglyceride,[1] fifty per cent. with glycerine, is placed against the cervix and the patient is transferred to the bed to recover slowly from the anæsthetic. Besides possessing antiseptic properties, the boroglyceride depletes the tissues and relieves irritation.

The stem used in the after-treatment is of hard rubber two inches long and slightly curved, having a cup-shaped shoulder which hugs the cervix and remains in position better than the glass stem I formerly used.[2] It is tunnelled or perforated through the centre to allow drainage. There are three sizes, 10, 12, and 14 English, corresponding with sizes 13, 15, and 17 of the American scale. Its introduction is best accomplished by means of the sponge tent applicator, the end of which is made to fit in the perforation. By using this the stem can be introduced very nearly straight, even when there is considerable flexion. The curve in the instrument takes the place of the curve in the stem and allows the point of the stem to pass the angle in the canal with greater ease. By seizing the cervix on the side with a tenaculum, and pressing the stem firmly into the canal, carrying the handle of the instrument well back toward the perineum, its introduction is facilitated. In retroflexion the movement is reversed.

On the day following the operation the tampon is removed, the canal cleansed of mucus, and the hard-rubber dilators are again passed, after which the stem is introduced as described above and held in position by a similar tampon of cotton soaked with the boroglyceride. This is repeated every day, the stem being removed, cleansed, and replaced. After a week of this treatment, during which time the patient is confined to her bed, the stem is removed permanently and she is allowed to get up. In some instances the stem is introduced curved at first, and after the uterus has become accustomed to its presence it is straightened.

When compared with the more dangerous cutting operations for the same purpose, rapid dilatation has decided advantages and fewer objections. If done as described above, it is perfectly safe and effectual; and if the stem is used in the after-treatment to prevent recontraction, the results are both satisfactory and permanent.

Of eighty cases operated upon in this manner, it has not failed in a single instance to cure dysmenorrhœa. No unfavorable symptoms have followed any of the operations, if we except the feeling of uneasiness during the first few hours after, produced mainly by the efforts of the irritated uterus to expel the stem when this was used immediately after the operation. This discomfort is now avoided by delaying the introduction of the stem until the following day; and with this improvement the most sensitive patient may go through the whole treatment with little or no suffering. In addition to this advantage, which cannot be overestimated, the uterus is allowed to recover from the shock it has received and the danger (if there be any) is reduced to a minimum.

Of this number, twenty were unmarried, some of them pale, sickly girls who menstruated scantily. Some menstruated with great effort and the uterus was found to be undeveloped. Within a year these had developed into robust, healthy-looking women, and their menstruation had become normal.

Of the married who were capable of conception and whose histories were followed, one-third have conceived. I should add, however, that one-fourth of this number have been operated upon within the past six months.

The conclusions arrived at are:

First. That rapid dilatation is a perfectly safe, justifiable, and satisfactory procedure, free from the dangers which frequently follow the cutting operations, especially the occurrence of cicatricial contraction.

Second. If the stem be used in the after-treatment, recontraction does not occur, and the operation does not require repetition.

Third. The operation is demanded by the following conditions: viz., (1) Marked stenosis with or without flexion. (2) Acute flexion without actual stenosis, the obstruction existing only coincident with menstruation. (3) Slight stenosis as shown by the passage of the sound, dysmenorrhœa and sterility existing without other cause. (4) Mild endometritis from acquired narrowing of the cervical canal and lack of free drainage for the discharges.

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[1] See The Medical News, March 22, 1884, page 324.

[2] Ibid., April 18, 1885, page 431.

MEDICAL PROGRESS.

Specific Nature and Inoculability of Varicella.—D'Heilly and Thoriot have published in the *Revue des Maladies de l'Enfance* the results of an interesting investigation from which the following conclusions are drawn:

1. Varicella is inoculable, but the disease thus produced may appear suddenly and without prodromes.

2. Variola gives no immunity from varicella, nor does the converse of this obtain. One may succeed the other, even while the traces of the initial lesions are visible. It is certain that the two diseases may simultaneously exist in the stage of incubation in the same individual, and it is probable that they may be simultaneously inoculated.

3. Varicella offers no resistance to the "taking" of vaccine.—*Revue Médicale*, Jan. 16, 1886.

Effect of Transportation on Eggs.—Dr. D. F. Wright, in the *Bulletin of the Tennessee State Board of Health* for February 28, 1886, describes as follows a new "disease" of eggs.

There is a condition of the egg, very little known, which considerably impairs its sanitary value as an article of food. Soon after it became the practice to transport eggs in large quantities and to long distances by railway trains, it was found on their arrival that adhesion had taken place between the membranes of the yolk and those of the shell, so that the yolk could not be turned out of the shell unbroken. On examination by experienced pathologists this was found to be the result of true inflammation; the material of the adhe-

sion was found to be precisely the same as that of the plastic exudation in inflammation of the lungs or bowels. It will at first seem absurd to speak of inflammation in such an unformed mass as an egg; but this arises from our forgetting that, structureless and unorganized as it seems, the egg, even when fresh laid, is a living being, and capable of disease from external causes. The cause of this inflammation is undoubtedly the shaking and friction from the motion of the cars, and it cannot but render the egg more or less unhealthy, as the products of inflammation can never be as salutary in food as those of healthy growth.

The Medico-legal Significance of Hæmatoma of the Sterno-cleido-mastoid in the Newborn.—In an elaborate original article in the *Centralblatt f. Gynäkologie* of February 27, 1886, Küstner presents the following conclusions:

1. Hæmatoma of the sterno-cleido-mastoid is not a result of extension or stretching, but of torsion of the neck.

2. Inasmuch as severe torsion of the neck may occur in spontaneous delivery, and in foot or breech as well as in head presentations, hæmatoma also may occur under these conditions.

3. Hence it is not permissible to conclude from the existence of a sterno-cleido-mastoid hæmatoma that manual or instrumental aid has been applied in the delivery.

Scopoleine as a Mydriatic.—Pierd'Houy describes the alkaloid of *scopolia japonica*, and claims for it a stronger mydriatic action than is obtainable from atropine. Clinically the use of the drug was found to be exempt from the discomforts observed in the exhibition of atropine. Its action is described as being very rapid, and, therefore, adapted to cases in which an immediate ophthalmoscopic examination is desirable.—*Les Nouveaux Remèdes*, Feb. 1, 1886.

Rules for Preventing the Propagation of Tuberculosis.—The Council of Hygiene of the Department of the Seine has just adopted and published the following series of instructions:

"The most active agent in the transmission of tuberculosis exists in the sputa, which should, therefore, never be deposited on the floor or on the linen, where it may be converted into a dangerous power.

"The patients in question must be instructed to expectorate in vessels containing sawdust; the contents of these vessels must be daily thrown into the fire, and the vessels themselves washed in boiling water at least once daily.

"The furnished apartment of a phthisical patient, especially in case of his decease, must be completely disinfected, together with all bedding, and the clothing of such a patient must not be used until it has been subjected to the action of steam."—*Gaz. Méd. de Paris*, Feb. 27, 1886.

Hepatic Origin of Urea.—Dr. D. W. Aitken describes, in the *British Medical Journal* of February 6, 1886, the following interesting case, the direct bearing of which upon the question of the source of urea is evident:

Early this month (January) I was called to see a boy who had, the day previous, received a rather severe blow upon the right lobe of the liver. When seen, he was complaining of much pain in the right hypochondrium. The skin was slightly, and the conjunctiva distinctly, jaundiced. The stools were pale, while the urine was bile-colored, and gave the bile reaction with nitric acid; there was no fever. But herein lies the important matter. The urine was highly alkaline. On the addition of nitric acid, there was such violent effervescence, that the froth was forced out of the test-tube, although the urine was not much more than one inch deep. I got my friend, Dr. Drinkwater, to examine the urine carefully. He reports that the alkalinity was due to ammonium carbonate, and, on estimating the urea, he found only three per cent.

This evidence seems to point strongly to the liver as the seat of production of urea. Dr. Graves has already reported several cases of absence of urea which he believed to be represented in the urine by the ammonium carbonate, but here we have a history of the organ involved.

Tubercular Contagion.—At a recent meeting of the Société Médicale des Hôpitaux, M. Vallin, in the name of the Committee on Phthisiology, reported as follows: The Committee had last year addressed a series of questions relative to the contagious nature of tuberculosis to 10,000 physicians, and answers had been received from only 83.

Of the 83 responses, 37 favored and 37 contested the existence of the contagium; 7 were unable to form an opinion, and 2 gave uncomprehensible responses.

The number of actual observations presented was 439. Of these, 213 were favorable to the contagion, and 226 hostile. On the first series of the 213 cases the following conditions of transmission were operative:

107 between married couples; 71 between near relations; 18 from child to parent; 16 between distant relations; 1 from man to dog.—*L'Union Médicale*, March 6, 1886.

Intravenous Injections of Iodine.—Van der Heyden has shown that large quantities of iodine may be injected into the veins without injury. The solution used is of the following composition:

Iodine	1 part.
Sodium iodide	2 parts.
Distilled water	7 "

The dose is two fluid-drachms. The treatment was first applied in a case of gastric fever of typhoid type, in which the temperature was 104° F., with a lasting fall of temperature. In two cases of incipient cholera good results were also obtained; in another, in which the algid state was pronounced, the injection was inefficacious.—*Les Nouveaux Remèdes*, March 1, 1886.

Indubitable Congenital Tuberculosis.—An eight months' fœtus was taken from a cow, the subject of advanced tuberculosis, by Dr. Johne. The placenta and uterus were free from tuberculous lesions, but in the lower lobe of the right lung a nodule the size of a pea was detected containing four caseous centres. The bronchial glands were congested and also tuberculous. The liver contained numerous gray granulations. Microscopically the tubercular structure was confirmed; masses of epithelioid cells with giant corpuscles containing tubercular bacilli were discovered.—*Lancet*, March 6, 1886.

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SATURDAY, APRIL 3, 1886.

THE PROPOSED BUREAU OF PUBLIC HEALTH.

IN THE MEDICAL NEWS of February 6, 1886, p. 148, attention was called to the prospects of National Public Health Legislation in the present Congress, and to the provisions of a bill prepared by the representatives of the American Public Health Association and of the Association of State Boards of Health to create a Bureau of Public Health in the Department of the Interior. As the Committee on Public Health had been abolished by the New Rules of the House of Representatives, this bill was referred to the Committee on Commerce, and, on March 23d, this Committee reported the bill with a few unimportant amendments, so that it is now on the calendar of the Committee of the Whole.

The bill, as reported, provides that a Commissioner of Health is to be appointed from civil life by the President, by and with the advice and consent of the Senate. The annual salary of this Commissioner is to be four thousand five hundred dollars. He is to collect and publish information relating to the public health, and as to the sanitary condition of ports and places at home and abroad, and, with the approval of the Secretary of the Interior, he is to make investigations both in the United States and, if necessary, in foreign countries, into the nature, origin, and prevention of contagious and epidemic diseases. The bill appropriates seventy-five thousand dollars to carry out its provisions, and repeals the act creating the National Board of Health.

There seems to be a fair probability that this bill may become a law, the chief danger of its failure is that of being crowded out in the press of business. That the country needs some such department of Government is very certain, and, although some opposition to this particular plan may be developed, it does not seem probable that anything can be proposed which will be more likely to secure unanimous approval.

As we have previously explained, there is not the least probability that Congress will grant any funds to the National Board of Health, and, that being the case, its friends admit that the sooner it ceases to exist the better, in order to make it possible to try some other method of obtaining the desired end. We can see no ground for objection to the proposed law, except possibly on the part of some enthusiastic sanitarians, who may think that it does not give the Commissioner any power, but, if this be a fault, which we do not believe, it is at all events a fault on the right side.

TUBERCULOUS INFECTION OF WOUNDS.

SINCE Volkmann called attention to the importance of studying the relation of tuberculosis to a variety of surgical affections, a large number of disorders which had previously been classed under other names, and generally and vaguely regarded as scrofulous, have come to be looked upon as essentially tuberculous. This is especially true in regard to many chronic inflammatory diseases of the bones and joints; so that it is now well recognized that the tuberculous process attacks the hard parts as well as the soft parts of the body. As a consequence, the presence of tubercles is suspected, and the detection of the bacillus tuberculosis is sought for in many cases with the result of confirming the analogy between tuberculosis of these tissues with that of the soft tissues, which has become so prominent a feature of the study of diseases of the bones and joints.

A very serious subsidiary question to the whole study of tuberculosis is that of accidental infection. In regard to the lungs and intestinal canal, this question is considered settled by many students of the subject. They have no doubt of the reality of infection by inoculation. This conclusion is not so evident to all, but it must be admitted that it has a very high degree of probability, and may be recognized without laying one open to the charge of hasty generalizing. In regard to the bones and joints, the matter is not yet so clear. The evidence in favor of the assumption that these tissues are sometimes infected by inoculation, is not yet strong enough to warrant very positive conclusions.

In 1882, KÖNIG reported a case in *Die chirurgische Klinik zu Göttingen*, Leipzig, 1882, p. 180, in which, after osteotomy for rachitic curvature of the bones of the leg, done with aseptic precautions, local tuberculosis followed, and the patient died in two months, the autopsy revealing tubercles in the ulcer at the seat of the wound, in the bone, in the

lymphatic glands of the thigh and iliac fossa, as well as in the liver, omentum, intestines, and lungs.

Tscherning has also recorded a case of accidental inoculation following a traumatism (*Centralblatt für Chirurgie*, June 20, 1885). Both of these cases are open to doubt as to their real nature, although they deserve consideration as evidence in this matter. Most recently Kraske has recorded two cases in which he believes that tuberculosis was due to inoculation in a surgical wound (Ueber tuberkulöse Erkrankung von Wunden, *Centralblatt für Chirurgie*, Nov. 21, 1885). In this paper the author refers to the comparative frequency of the reappearance of tuberculous disease after incomplete removal of an affected part, and to the fact that such a recurrence has never been observed after unquestionably complete removal—as by amputation through healthy tissue—and to the other fact that there is no reliable record of the occurrence of tuberculosis after an operation in an individual not affected with, or predisposed to, tuberculosis.

His first patient was a boy, eleven years old, with an excellent family history, except that a sister was consumptive. The boy suddenly fell ill with fever of a high grade, which was diagnosticated to be typhoid (typhus). Symptoms of osteomyelitis soon appeared, and an abscess formed over the right thigh, which was opened, and from which a sequestrum was removed. Two years afterward Kraske found him with two fistulæ communicating with diseased bone, but without any sequestrum. He cleared out the fistulæ and the cavity in the bone, and dismissed his patient from the hospital at the end of two weeks, with one fistula healed, and the other closed, except the opening, which had been occupied by the short drainage tube, and which was granulating well. Seven months afterward the boy was brought back, with the second fistula still unhealed, and with pronounced tuberculosis of the bone and of the surrounding parts. In the tissues now removed miliary tubercles and giant cells, as well as a few bacilli, were found.

His second case was that of a boy, ten years old, with clearly tuberculous antecedents. His illness began with high fever and delirium in November, 1884, after a fall upon the left knee. Two abscesses formed above the knee in three weeks. In June, 1885, the boy came under Kraske's care. At this time he presented a badly united fracture of the lower part of the left femur, in regard to which no history could be obtained. He had also a fistula on the outer side of the thigh, communicating with a movable sequestrum. A second fistula on the inner side of the thigh led down to bare bone. This fistula, in contrast to the other, which was granulating, was surrounded by thin, undermined skin, and was not granulating. When operated upon, this fistula was found to be tuberculous. The other one was not, but led down to bone showing unmistakable evidence of osteomyelitis. About six weeks after the operation on both fistulæ the patient was dismissed, with the injunction to return. Kraske says the wounds granulated well, but does not state that they were entirely healed when he sent the boy away. The subsequent course of the case may be looked for with some interest, and it is to be hoped that the same surgeon may have another opportunity to observe and report upon it.

In commenting upon these two cases, Kraske asserts positively that the previous history and the appearance of the diseased parts leave no doubt that both were originally cases of acute osteomyelitis, and he believes that the development of tuberculosis was due to infection by inoculation. He attributes the tuberculous infection in the first case to inoculation of the wound, on account of the appearance of greater intensity near the surface, and the diminution in intensity in the deeper part, which is analogous to the appearance presented in secondary cheesy infiltration of the ends of bones when their cartilage has been destroyed, and which was so markedly the case in his second patient. In the second case, tubercle bacilli were found in the scrapings of the *outer* part of the fistula which presented the appearance of tuberculosis, but not in any of the *débris* of its deeper part, nor of that from the other fistula which communicated with the sequestrum cavity. Kraske argues that the inoculation of wounds with the virus of tuberculosis is not so uncommon as it is generally supposed to be, citing cases recorded by Karg and by Riehl, as well as that of Tscherning, which we have already mentioned. In the first of his own cases the patient was nursed and the wound dressed daily in the same room with his consumptive sister, and in this room the dressings for his wounds were kept. This, Kraske not unreasonably supposes, would furnish an easy way of explaining the manner in which inoculation took place. In conclusion, he suggests the question, whether or not an acute osteomyelitis may strongly predispose an individual to infection, who would not otherwise be liable to it?

From this epitome of the paper of Kraske, it will be seen that he makes out a good *prima facie* case for his opinion; but it is not conclusively proved. Although there is abundant evidence of the possibility of experimental inoculation of tuberculosis, there is, in our opinion, room for great doubt as to the occurrence of accidental inoculation. A comparatively small number of reported cases in which the assumption that infection has taken place in this way seem plausible, but they cannot overturn the apparently strong argument against it, which is furnished by the general experience, medical and surgical, in regard to

the occurrence of tuberculosis, and the special experience in hospitals for consumptives, such as is furnished by the reports, often cited, of the Brompton Hospital. And even in these interesting cases reported by Kraske, we cannot see why he should assume that the first occurrence of the deposit of tubercles in the outer parts of certain fistulæ points so surely to the entrance of the *materies morbi* from the outside. It cannot be doubted, from the enormous number of cases of tuberculosis occurring in closed cavities, that something in the individual leads to their development. It seems equally certain that tuberculosis develops in the first place at a *locus minoris resistentiæ*. Now in such cases as are cited by Kraske, is it unreasonable to assert that the parts near the surface may have been, and probably were, the points of least resistance? If they were, then what he considers a cause was an effect. The introduction of tubercle in the outer parts of the fistulous tracks was not the cause of their diseased state, but their weakened and diseased condition was the determining cause of the formation of tubercles first at that particular spot.

We say this, not with the design of denying the correctness of Kraske's opinion, or of impugning his candor, or of depreciating his ingenious argument, but in order to invite a further critical study of the question of the inoculation of wounds with tubercle —a question than which there are few more interesting in medicine and surgery, and one which is of the utmost importance for mankind. There are abundant opportunities in general and in hospital practice to follow up the study of this question, and if we succeed in prompting some of our readers to use these opportunities we may hope, before long, to have contributed something more positive to its solution.

FAULTS OF HOUSE DRAINAGE.

The illustrations in *The Sanitary Engineer* of March 18, of specimens of defective and dangerous plumbing-work removed from dwelling houses, some of them costly edifices, which have been preserved by the Master Plumbers' Association of Philadelphia for purposes of instruction, point forcibly to the necessity of efficient sanitary regulation and supervision of house drainage and plumbing in all their details. These examples represent only a few of the defects which are constantly encountered in overhauling old plumbing-work, and their publication will confer a benefit upon the public by drawing attention to this important subject.

Nuisances caused by faults of house drainage are of a serious character, because the effects are exerted directly within the house. The modern plan of disposing of solid and liquid excreta and the bath and kitchen waters by means of a system of pipes connected with a common drain leading into the public sewer or a cesspool, exposes the inmates of the house to dangers to health incident to faults in the drainage arrangements themselves, and to a close connection with the sewer or depository of sewage. Bad materials, inferior apparatus, and unskilful construction may defeat the object for which the system of drainage is intended, so that the air of the house and the soil upon which it stands become contaminated by the escape of gases from foul waste- and soil-pipes or offensive sewers, and by leakage of liquid filth through disjointed pipes. Water-closets, baths, sinks, and washstands in the interior of the house, the latter often within the bedrooms or in their close neighborhood, are brought in more or less direct communication with sewers, and are often so many outlets for foul and even poisonous vapors that collect within them. The ignorant or negligent arrangement of overflow-pipes, the want of proper traps, traps allowed to become dry by disuse or leakage, the careless misplacement of traps of the movable kind, afford so many ways for the entrance of sewer air, an accident which is all the more certain to occur when there has been neglect to provide ample soil-pipe ventilation. Water-closets of bad design and construction, which retain the filth and become obstructed from this cause, as well as from insufficient flushing, are a constant source of offensive odors.

Another danger arises from injudicious connection of the service-pipe with the water-closet for flushing purposes. It is a very common occurrence, even with the constant system of water-supply, for the flow of water on the upper floors to be cut off by loss of pressure caused by turning on a cock in the basement or on the lower floor. Should the closet-pan be full and the valve open when the flow is stopped, it is possible, and highly probable, that foul air and even fluid filth will be drawn into the service-pipe and defile the water that may be immediately afterward used for drinking purposes.

House drains, which are very frequently located immediately under the house, may be the means of polluting the soil and foundations, should any defects exist in their construction. By unskilful construction, or by subsequent careless use, or want of repair, the sewage of the house, instead of passing freely and continuously into the sewer, becomes effused into the basement through broken or disjointed pipes. In consequence of the escape of the liquid parts of the sewage, obstructions form, which, in time, block up the pipes. This occurrence is frequently not detected until, after an unusual discharge of liquid matter which the saturated soil is not able to absorb quickly, the sewage makes its appearance at the lowest fixture in the house by an overflow. Where water escapes, gases will also escape, and through the same breaks and misplaced joints sewer-air will pass into the soil, adding to its impurities, which, in the form of foul air, are drawn directly

into the basement, and thence distributed all over the house by the ascensional force of heated air.

Neglect to make use of an intercepting trap on the main drain between the house and the sewer and to provide for the free circulation of fresh air throughout the drain and soil-pipe are faults which cannot be too severely condemned. Concealment of the pipes within partition walls or beneath basement floors gives finish to the work, but it prevents prompt detection of defects and makes repairs difficult and expensive. Other faults might be enumerated, but the selection made should be sufficient to indicate the importance of municipal regulation of house drainage and plumbing-work according to established rules and the principles of sanitary science.

EXPERIMENTAL TRANSFUSION.

IT is now generally recognized that many of the conditions in which the operation of transfusion of blood has been regarded as essential, may be successfully treated in other ways. Thus it is admitted that the collapse following severe hemorrhage is due not to a loss of blood *per se*, but to a purely quantitative loss of fluid vascular contents—a loss which may be supplied by the intravenous injection of salt solution. Nevertheless, in spite of its dangers, occasions arise in which transfusion is indicated, and in view of the growing disfavor with which the operation is now regarded, much interest attaches to some recent experiments of BIZZOZERO and SANQUIRICO, recorded in the ninth volume of the *Arch. per le Scienza Med.*

In the dogs which were the subjects of these experiments, both the numerical proportion of the red corpuscles and the percentage of hæmoglobin were first ascertained. Blood in varying amounts was then withdrawn, and an equal quantity of defibrinated dog's blood transfused by the jugular vein. In periods of from fifteen minutes to eighteen days the blood of animals thus operated upon was investigated, and the results compared with those of the preliminary examination. In a second series of experiments, one-half of the total blood of the animals was withdrawn, defibrinated, filtered through linen and returned to the veins of the animals from which it was taken. This procedure was ten times repeated, so that each corpuscle of the animal was subjected approximately five times to this rough handling. Before and after this series of experiments the same close examination of the quantitative relations of corpuscles and hæmoglobin was instituted, with the result of showing that in no case, in either series, was a noteworthy effect produced.

These observations lead to the conclusion that not only is the red corpuscle remarkably resistant to rough treatment, but that the transfusion of the defibrinated blood of animals of the same species is not injurious.

SOCIETY PROCEEDINGS.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, March 3, 1886.

THE PRESIDENT, S. WEIR MITCHELL, M.D., IN THE CHAIR.

DR. THOMAS G. MORTON reported

A CASE OF SPINAL CURVATURE THE RESULT OF UNRECOGNIZED ASYMMETRY IN THE LOWER LIMBS.

The patient, aged twenty-four, was a puny boy until about the age of fifteen. He then grew rapidly and gained his height, which is now five feet eleven inches, in the course of fifteen months. He has never been sick in his life, with the exception of the ordinary ailments of childhood. While growing rapidly, he noticed when lifting a stone some pain upon the right side. He has never experienced pain, except when lifting weights, never while lying down. He has been a student of medicine for two and a half years. Sitting on hard benches has caused considerable spinal ache. A year ago the diagnosis was made of serious necrosis of the lower dorsal and lumbar vertebræ. For this a plaster jacket was applied. During the past four or five years, there has been a constantly increasing lateral curvature. On examination Dr. Morton found a marked spinal curvature with lameness, and great asymmetry in the length of the lower limbs. He found it necessary to use a block an inch and seven-eighths in thickness, to bring the right limb to its proper length as compared with the left. With this elevation, the spinal curvature almost entirely disappeared. It has been a little difficult to determine whether, at the time he commenced to grow more rapidly, there was any involvement of the spinal nerves which impaired nutrition of the affected side, which involved not only the upper part of the body, but the lower part as well. Dr. Morton's experience in lateral curvature is, that in the absence of asymmetry of the lower limbs almost all curvatures arise from some morbid condition of the spine, as seen in infantile paralysis. There is generally more or less muscular atrophy and permanent deformity in cases of marked lateral curvature. This is seen in the diminished size of the upper and lower extremities of the affected side in most of these cases. It is barely possible that when this patient commenced to grow, at the age of fifteen, development did not take place in the right side and lower extremity, but against that theory examination shows that the thigh and calf muscles are equally developed, the only variation is the unequal lengths of the limbs. He, therefore, believes that this want of development is congenital. The patient has always had difficulty with the heel of the shoe upon the right side, which would wear out differently from that of the other.

The patient now has no spinal tenderness, except when in the deformed position. He is now unable to stoop very well, but before the application of the plaster jacket, less than a year ago, all of the spinal movements were normal, and he was quite a gymnast. He ascribes the present condition to the use of the jacket. The unnatural pressure, perhaps, led to a partial absorption of the intervertebral cartilages upon the right side, and

this may have caused more or less fixation of the vertebræ.

In many cases asymmetry in the lower limbs produces a slight amount of lateral curvature with pain. A careful measurement of the limbs will detect this at once.

Dr. W. W. Keen said: In standing with his foot on the block, the patient's right buttock seems higher than the left. This appears to be confirmed by examining the line of the anterior superior process of the ileum. The deformity appears to be overcorrected by the block one and seven-eighths inches high, and the shortening less, therefore, than was stated. He should like to ask Dr. Morton whether there is any explanation with reference to the causation of the trouble.

Dr. De Forest Willard said: If this be simply a case of lateral curvature, how does Dr. Morton account for the marked rigidity? Rigidity is rare in lateral curvature except in the late stages. It is difficult to determine in this case whether rotation has occurred, on account of the inability of the man to stoop. The pressure of a gypsum jacket for so short a time should have produced relaxation and atrophy rather than stiffness.

Dr. Thomas G. Morton thought that the want of symmetry in this case is congenital. With reference to the slight overcorrection of the deformity, it may be that this block is a little high, but the only way we have of noting when the asymmetry is overcome is by the eye, and the absence of lameness in walking.

Lateral curvature of the spine frequently occurs in hip-joint disease. One reason that it does not occur in many cases is that the shortened limb is provided with a proper shoe apparatus. He did not say that absorption of the intervertebral substance had occurred, but he thought it possible. It is probable that in the course of six months or a year the now slight unrectified curvature may disappear. In order to support the spine in every direction, the patient wears an ordinary spinal brace. The spine was perfectly pliable until the plaster jacket was applied and worn a number of months. This may have had some influence in stiffening the spinal column. The patient has never had any symptoms indicative of Pott's disease.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, March 15, 1886.

The President, C. A. Leale, M.D., in the Chair.

Dr. Herman M. Biggs read a paper on

THE ETIOLOGY OF RABIES, AND THE METHOD OF M. PASTEUR FOR ITS PREVENTION.

Much study, he said, has been given to this disease, perhaps the most terrible one to which the human or animal organism is subject, as has been the case with most affections when the causation was involved in obscurity. These investigations, however, have resulted only in the presentation of many hypotheses, without establishing a single condition or circumstance which can bring about or predispose to the development of the disease, excepting only the contagious principle as transmitted from rabid animals. Many observers have, therefore, expressed their belief in the occasional spontaneous origin of rabies, among whom is Fleming, the most able of the recent English writers on the subject, who says that there are few nowadays who are not convinced that it will occasionally appear in a spontaneous manner and without any exciting cause.

In support of this view he referred to the appearance of the disease in an epizootic form in countries where it has been previously unknown, and when its appearance could not be traced back to any foreign source, as was the case in Peru, in 1803. Again, it has been observed not infrequently that in certain countries which have been free from the disease for long periods of time, it suddenly appears in almost an epidemic form, and after a short time becomes again apparently extinct.

But whatever disagreement there may have been among writers as to the spontaneous origin of rabies, there has always been the greatest unanimity as to its contagious nature. More recently it has been almost fully established that this contagious principle, whatever may be its nature, is the only "evident, efficient, and incontestable cause." The occasional spontaneous development of the disease in certain of the carnivora, as advocated by many distinguished veterinarians, must, he believed, be entirely rejected in view of the facts recently demonstrated with relation to the germ diseases, and he accepted absolutely the conclusion that "this disease is maintained and spread solely by its contagious principle, and that there are no other causes in operation."

It is a matter of the greatest importance that the fallacious ideas so prevalent among the laity, and to no small extent among the profession also, in regard to the influence of climate, season, hunger, thirst, food, pain, anger, ungratified sexual desire, etc., as predisposing or exciting causes, should be corrected. There are no better or more reasonable grounds for believing that any one or all of these influences combined can bring about the development of a single case of rabies, than that unfavorable sanitary conditions can produce smallpox when the specific contagious virus of that disease is not present. After presenting a number of established facts bearing on this point, Dr. Biggs remarked that a wound or injury produced by the teeth of a non-rabid dog, one the saliva of which does not contain the living organism, whatever may be its nature, which is its essential cause, can no more bring about the specific disease which we call rabies than can the wound made by a sterilized knife.

As to the nature or character of this *contagium vivum*, we have at present no absolute knowledge, excepting that it must be a living matter capable of reproduction and multiplication when transferred to the living organism, and there producing a specific disease manifested by varying symptoms in the different species of animals affected; of the presence or virulence of which we can only know by the results produced when introduced into the blood of previously healthy animals. That it is exceedingly minute is shown by the difficulty experienced in its demonstration, and that it is a microörganism belonging to the Schizomycetes is rendered probable by the similarity observed to other known pathogenic microorganisms, as regards the mode of its transmission and development.

Having mentioned that Dr. Fol, of Geneva, had recently claimed to have discovered the specific microorganism, to have demonstrated it in the neurogha of

the central nervous system, to have succeeded in cultivating it in appropriate culture media, and to have produced rabies in rabbits by inoculations with pure cultures of this germ, Dr. Biggs quoted *in extenso* this investigator's description of his methods of procedure as given in his communication on the subject to the French Academy. He then went on to say that the claims of Fol are not favorably regarded in Pasteur's laboratory, on the grounds, first, that the methods which he describes and used for the cultivation of the germ have been repeatedly employed by M. Roux, Pasteur's first assistant, without any result; second, that he describes the germ found by him as an aërobic, while from the nature of the rabies, and the presence of the *contagium vivum* in the nervous system, it seems far more probable that it is an anaërobic or facultative anaërobic germ; and, third, because he has produced rabies in rabbits, in which the disease manifests itself by no characteristic symptoms, as is the case with dogs, and in which rabies may be easily confounded with the various forms of septicæmia. If, then, we accept the only rational theory as to the etiology of rabies, the microbic nature of the cause, although a supposition that has not yet been proven excepting as we reason from analogy, and acknowledge the impossibility of the appearance of the disease except after inoculation with this living virus, the consideration of the methods for its prevention naturally follows.

Having referred to Pasteur's studies upon rabies up to the time of the meeting of the International Medical Congress in 1884, he remarked that some of the conclusions arrived at in his earlier work have not been confirmed either by his own later investigations or by those of other observers, and are in some respects opposed to the results recently reported. It must be admitted, also, he said, that unfortunately in his last communications he has not discussed the question so much in detail as could be desired, nor has he given definitely the number or character of the experiments upon which his conclusions and the general principles drawn from them are based. The failure to do this will render it impossible for any other investigator to repeat or confirm his experiments, and without such confirmation, from a thoroughly reliable source, there will of necessity be much reserve among scientific men about the acceptance of such important and far-reaching principles as are involved in his method for the prevention of rabies.

Dr. Biggs then gave a *résumé* of the former method of Pasteur for rendering dogs refractory to the disease, as presented in his communication to the French Academy, May 20, 1884. Having quoted the statements of Pasteur himself, that this process is dangerous in application, not sufficiently rapid, and not positive in its results, he proceeded to give a detailed account of Pasteur's present method, in regard to which the savant says, in the introduction to his latest communication: "After almost innumerable experiments, I obtained a preventive method, practical and prompt, of which sufficiently numerous and assured successes have already been obtained upon dogs to give me confidence in its general applicability to all animals and to man himself."

The efficacy of this method, he then went on to say, is proven by subjecting fifty dogs to these inoculations, with success in every case in rendering the animals refractory to rabies. After having arrived at these results, Pasteur felt justified, after consultation with Drs. Vulpian and Grancher, in subjecting to the process the boy Joseph Meister, who unexpectedly presented himself for treatment, July 6, 1885 In speaking of this case, Pasteur says: "I dare say that a smaller number of inoculations would have been sufficient, but it is easy to understand that the first trial was made with the observation of every possible precaution." In order to determine the virulence of the virus used, two rabbits were each day inoculated in the usual manner with the same virus as that used for the boy. These inoculations showed that the cords used on the 6th, 7th, 8th, 9th, and 10th of July were not virulent, since they did not produce rabies in the rabbits inoculated on those days. The cords used on July 11th, 12th, 14th, 15th, and 16th, however, were all virulent, and of a constantly increasing virulence. Rabies appeared after seven days of incubation in the rabbits inoculated with the cords of July 15th and 16th, after eight days in those of the 12th and 14th, and after fifteen days in those of July 11th. Notwithstanding that in the last inoculations virus was used which was far more virulent than that of rabid dogs which have contracted the disease in the ordinary way, still these inoculations were followed by no symptoms; and now that more than six months have elapsed since this boy was bitten, he yet remains perfectly well.

Since Pasteur's communication to the French Academy, October 26, 1885, his laboratory has been besieged by many persons, from all countries, who have been bitten by rabid dogs, and up to the time of Dr. Biggs's recent visit to Paris, 140 patients had been inoculated. Referring to the one case in which death from hydrophobia resulted shortly after the inoculations were completed, he said that, in explanation of the failure to prevent the appearance of the disease in this instance, Pasteur asserted that the period of incubation, as transmitted from the rabid dog, had elapsed before immunity had been conferred by the inoculations (thirty-six days having intervened between the bite and the commencement of treatment), and this explanation certainly seems reasonable when we remember that the period of incubation of rabies in the human subject, although usually more than thirty-six days, is not infrequently less than this time.

An interesting and serious question came up in connection with this death, viz., whether the disease might not have been the result of the inoculations rather than of the dog-bite, and a solution of this question was obtained in the following way: The virus of a rabid dog, when transferred to a rabbit by inoculation underneath the dura mater, after trephining, produces rabies, on an average, in fifteen days; while the most virulent cords used in the inoculations produce rabies with the greatest uniformity in rabbits in seven days, and in dogs in from eight to ten days. Pasteur asserted that if rabbits were inoculated in the usual manner with material from the brain or spinal cord of this child, if the disease in the child were produced by the inoculation, the rabbits would die of rabies, which declared itself after a period of incubation of seven days; but if the disease in the child was due to the inoculation made by the bite of the rabid dog, then rabies in the animals would not make its appearance until about the fifteenth day.

Accordingly, rabbits were inoculated from the child's brain removed at the autopsy, and it was found that they died with the usual symptoms of rabies, which appeared on or about the fifteenth day. The result of this experiment is apparently satisfactory; but there may, perhaps, be a source of error in the possibility of the periods of incubation of the respective virus being altered by their passage through the human subject.

Having referred to the importance, in connection with the conclusions to be drawn from the results of Pasteur's inoculations, of determining whether the dogs biting the various persons treated really had genuine rabies, he mentioned that in the case of the four Newark boys, not one of a number of dogs bitten by the dog which bit the children, nor either of the two boys which remained at home, had up to the present time exhibited any symptoms of rabies.

Having discussed the period of incubation of rabies in man and in animals, Dr. Biggs said that as to the interpretation of the prophylaxis against rabies, Pasteur states that the alteration in the virulence of the rabic cords by the process of desiccation, is explained on the supposition that the continuous contact of the dry air produces a gradual diminution in the intensity of the virulence of the cords, until it finally becomes extinct; that the prophylactic method in its application depends for its efficiency upon the employment at first of a virus without appreciable activity, followed by a weak virus, and then by a more and more virulent form; that the diminution of the virulence of the cords is due to an impoverishment in quantity of the virus contained in the cords, and not to an impoverishment in virulence. Consequently, in the inoculations the virus used is always identical as regards its virulence, and is variable only in respect to the quantity employed; so that the refractory condition to rabies follows from the employment of very small, but constantly increasing, quantities of virulent material.

This interpretation of the method of action of the virus is the more interesting, as a new and quite different principle is involved from that obtaining in the vaccine for smallpox, or the vaccines devised by Pasteur for the prevention of anthrax, chicken cholera, and typhus in pigs. In smallpox we have a virus modified in character and virulence by its passage through another species of animal; in anthrax, chicken cholera, and typhus in pigs we have a virus modified in respect to its virulence by the conditions of temperature to which it has been subjected during its developmental growth; and, finally, in rabies we have a prophylactic method dependent upon the employment of a virus always constant as regards its virulence, but used in very small and constantly increasing quantities.

Apparently, then, already there have been three distinct methods discovered for the preparation of preventive vaccines for the different forms of contagious disease. The theoretical principle has also been established by the researches of Pasteur, and more recently of Burdon-Sanderson, of the possibility of depriving cultures of pathogenic microörganisms of their virulence in a constant and persistent degree, without in any other respect affecting their morphological character. Taken in connection, these methods for preventive vaccinations present almost unlimited possibilities in preventive medicine, and possess a significance the importance and far-reaching nature of which can scarcely ever be comprehended.

Dr. Biggs said that in regard to the possibility of transmission of the disease by animals or human beings subjected to these inoculations, to other animals or human beings during the process of inoculation, or at any period after this time, Pasteur states that he has made no experiments or observations. As to the duration of the refractory condition to rabies after the series of inoculations, Pasteur believes this period to be not less than one year, and probably considerably longer than this; but no careful data upon this point are at present at hand.

Dr. Biggs then proceeded to discuss the conclusions which are to be drawn as to the accuracy of Pasteur's observations upon rabies and the efficacy of his method for its prevention. As to the first human subject inoculated, the boy Joseph Meister, he could not but entertain the opinion that the dog which bit him was not affected with genuine rabies. It was certainly very unlike the ordinary behavior of rabid animals to fall upon a person with such ferocity and persistency as must have been the case in this instance, where the lad was bitten in no less than fourteen different places. Again, the autopsy of the animal did not afford sufficiently satisfactory proof of the existence of rabies.

But however this might be, he thought far too much importance had been attached to this case, and it seemed to him that the strongest evidence of the efficacy of Pasteur's method for the prevention of rabies rests, not upon any results thus far obtained in the inoculation of human beings, but upon the results of his experiments upon dogs. If he has been able not only to render fifty dogs refractory to rabies, without a single failure, but also has succeeded in preventing the development of the disease in a large number of dogs after they had been bitten—both of which he asserts positively he has accomplished—then the question as to the prevention of the disease in human beings is only as to the method of application. Dogs are far more susceptible and liable to the malady than human beings, and the character of the disease being evidently the same in both man and dogs, if dogs can be brought into a refractory state to the disease, certainly it is not assuming too much to conclude that the same is true of the human being.

Dr. Biggs concluded in these words: "But, throwing aside the evidence which we have now at hand, as to the efficacy of Pasteur's method—and I think it must be said that it is not altogether satisfactory in character—let us consider the probability of the correctness of these last observations from the light thrown upon the subject by his former work. Does it seem probable that the man who, in the earliest infancy of bacteriology, disclosed the nature and cause of fermentation, and established our knowledge of it on a firm foundation in the face of much opposition and scepticism, the man who disproved the theory of spontaneous generation, and laid the foundations upon which rests our whole system of antiseptic surgery, who disclosed the nature of the plague in silkworms in France, and devised the methods for its prevention, who discovered the principles underlying the method of protective vaccination in the diseases of animals, and has prepared the only practicable vaccines; does it seem probable that such a man has given nearly six years of continuous study to the consideration

of rabies without achieving some substantial results? Or does it seem probable that he has been dealing all these years with some form of septicæmia, as has been suggested; laboring under the delusion in the meanwhile that it was rabies? This I cannot believe; and if it is not true, then Pasteur's conclusions must be in the main correct, for certainly no one will question his honesty. Every great discovery in science has been met with scepticism, opposition, and ridicule. . . . . Pasteur's prophylactic method rests purely on empirical grounds, and can only be fairly judged by the practical results obtained by its use. So far as we know at present, these have sustained the claims of its learned discoverer, and until they are refuted by further observations, we believe it is unjust to characterize the work of Pasteur, as has been recently done, as being founded 'on untrustworthy experiments and unsound reasoning, deserving to be rejected and condemned in the interests of humanity as well as science.' On the other hand, if future observations confirm the results that now seem to be at least probable, this discovery, added to his other achievements, will rank Pasteur as one of the greatest benefactors to his race that this generation has produced, and, from a scientific standpoint, will be considered one of the grandest triumphs of the century."

Dr. A. Flint, Jr., said that it was proper to put the facts alleged by Pasteur, to the same tests as any new discoveries in physiology are required to be subjected to. It was not without precedent that this disease had been studied in the way that it has. From the fact that a prominent symptom in most cases of rabies is a spasm of the muscles of deglutition, especially excited by the sight of liquids, the renowned experimenter Magendie had attempted to cure a case of the disease in the Hôtel Dieu by intravenous injections of water; and it is hardly necessary to add that the attempt was a complete failure. Although this affection, on account of this symptom, is commonly known as hydrophobia, its true name is rabies, and this procedure on the part of Magendie does not seem like a philosophical method of treating the disease.

More recently, woorara poison, which has proved such a valuable agent in many physiological experiments, has been tried, by more philosophical methods, in the treatment of rabies. It is true that this also has been directed especially against a symptom; but it has also been employed for the purpose of counteracting a general pathological condition. A number of years ago, Offenberg reported a case of the disease cured; in 1850, a case of spontaneous cure was observed by a veterinary surgeon in Lyons; and in 1864, Décroix met with quite a number, all in dogs. A case of spontaneous cure has also been reported in the human subject. But all these alleged recoveries are clouded by one possibility, that of an error in diagnosis.

But Pasteur's method is one of prevention, as he does not propose to treat the disease after it has actually broken out in the system. According to the older ideas, rabies was propagated only by means of the saliva of certain animals, notably dogs and cats; and the saliva of the wolf has been regarded as of peculiar virulence. For a long time it was denied that any other fluid, or part of an animal suffering from the disease, was virulent; and it was also held, that the saliva of the herbivora and of the human subject were incapable of inoculating with rabies. In his preventive inoculations, Pasteur long since abandoned the use of saliva, and resorted to a method which is entirely artificial, viz., the injection of virus under the dura mater of rabbits, after trephining of the skull, in order to produce the disease in these animals, the spinal cords of which he uses in inoculating human beings.

It, therefore, becomes a vital question to determine whether these rabbits are actually affected with rabies or not, and Dr. Flint said that he did not know whether or not any one had ever given a precise description of this disease as it appears in rabbits. Pasteur states that the rabbits are rabid; and we are called upon to accept his dictum, without any evidence whatever to support it. He had himself, in connection with various physiological investigations, experimented upon a large number of rabbits, and he knew that their delicate nervous organizations are very seriously affected by operations much less serious than trephining. He believed, therefore, that before we could accept the statements of Pasteur as facts, it is necessary that they should be corroborated by such control experiments (such as the injection of bouillon without spinal marrow, etc.) as are demanded of any physiologist who professes to have discovered facts which were previously unrecognized. But if by any such means as those proposed by Pasteur a human being can be prevented from having rabies after exposure to the risk of the disease, it, of course, makes no difference whether the rabbits used in the process have rabies or not. This is the practical point; but when we come to a theoretical consideration of the matter, the condition of the rabbits is a circumstance of great importance. If investigators, even as illustrious as Pasteur, such as Magendie and Claude Bernard, for instance, had attempted to introduce any new points into physiological science which are not better supported by corroborative evidence than Pasteur's alleged discoveries, their statements would not have been accepted.

With regard to dogs, Dr. Flint inquired whether there was a single authenticated case of a dog contracting genuine rabies by inoculation from Pasteur's rabid rabbits. For such an alleged fact we have only Pasteur's own statements to depend on. Moreover, the dog that bit Joseph Meister did not act as rabid dogs ordinarily do, the animals being rendered insane by the disease. Again, a man bit by a rabid dog has about three chances out of four of not having rabies. In a large proportion of instances the bite is made through the clothing, and we might almost as well expect a vaccination to take which had been made in a similar way as to suppose that an individual would have hydrophobia under such circumstances.

Now, under our present knowledge of this subject, shall a human being be subjected to the possibility of inoculation with a poison which gives rise to one of the most frightful diseases known to man? The case of the little girl who died after inoculation by Pasteur, shows one of two things. Either that this period had elapsed between the bite of the rabid dog and the commencement of the preventive treatment, or else the disease was actually produced by the inoculations. Dr. Flint said that it is not absolutely certain that any dog had ever been rendered refractory to rabies by Pasteur, and that it is a necessary step in the application of the method to human beings to prove that

dogs which had actually been bitten by a rabid dog had been rendered refractory to the disease. When a dog becomes mad he does not first have his skull trephined, and the same is true of men. It is pertinent to inquire, therefore, whether dogs and persons rendered "refractory" by the Pasteur method are in reality refractory to rabies when conveyed into the system in the ordinary way. This question, he thought, had not as yet been answered in a sufficiently definite and satisfactory way. It was a curious fact that no phenomenon whatever was observed in the system while the process of inoculation was being carried on.

Dr. Flint then went on to say that the science of medicine had never received more glory than by the discovery of vaccination, by which more lives had probably been saved than by any other in the history of medicine. Not long since he had had occasion to go over the investigations of Jenner, as described in his published writings, and he had been more profoundly impressed than ever with the accuracy and logical sequence of his researches in the development of his great achievement. This scientific accuracy has not appeared in anything that has as yet been published by Pasteur, or under his authority. It is only his splendid and well-deserved reputation, as far as can be judged at present, which preserves him from the charge of asserting claims which he cannot substantiate on a scientific basis. If the Newark children are to be taken as samples of the 325 cases which he has just announced to the Academy of Sciences that he has successfully inoculated, the percentage of real successes in this number must be extremely small, since it has now been substantially proven that the dog that bit these children was not mad, by the fact that not one of seven dogs which were also bitten by the same animal, and which have been confined and carefully watched, has exhibited any indication of rabies after the expiration of more than ninety days.

Dr. E. G. Janeway said that last summer, when he was in Paris, he was sufficiently interested to visit Pasteur's laboratory, although this was before his prophylactic process had been applied in the case of a human subject. He was cordially offered the opportunity of inspecting the method of inoculation, but not of the preparation of the virus used for the purpose. While there, he asked himself this question, which seemed to him to be the keynote of the whole matter: Have these dogs been rendered refractory to hydrophobia as conveyed in the ordinary way? This is the point of vital importance, and he said that if they *are* rendered thus refractory, he could see no objection to carrying out the same plan of inoculation in the human subject in any case where an individual has been exposed to the risk of contracting the disease.

As to the spinal marrow being employed as the agent for transmitting the virus, it seemed to him entirely appropriate. The virus which is lodged in the wound made by the bite of a rabid dog and remains there for a time, is undoubtedly composed of living matter. Thence it is diffused throughout the system. While it is present in the saliva, therefore, the manifestations of the disease show that the germ is also in the spinal marrow and the medulla oblongata, or, if this is not the case, that it circulates as a specific poison in the blood and acts as an irritant upon these nervous centres. In other analogous diseases we find after death the germs of the affection at or near the points of inflammation, and, therefore, it seemed altogether appropriate to employ these parts for the purpose of inoculation.

Whether the time has really come to subject human beings to these inoculations is perhaps open to question; but in any case where an individual has been bitten by a dog known to be mad, there would seem to be no objection in adopting Pasteur's method, which has, at all events, proved innocuous in more than three hundred cases. From the statements of Dr. Biggs and others, there seems to be no reason for doubting that dogs have really been rendered refractory to the disease by it.

As to the case of the Newark children, it is questionable whether the dogs bitten by the same animal as the boys, were kept under observation for a sufficiently long period. In Berlin under similar circumstances, dogs have been confined for six months, instead of three. Dr. Janeway thought it unnecessary to adopt the Pasteur process for the purpose of rendering dogs generally refractory to rabies, as vaccination is used among human beings to prevent them from having smallpox. Hydrophobia could be more satisfactorily prevented, he believed, by the rigid enforcement at all times of the law requiring dogs to be muzzled. Under such a provision in Berlin, not a case of the disease occurred for five years. Dr. Janeway stated, in reply to a question by Dr. Jacob Hartmann, that the period of incubation in hydrophobia is indefinite, but usually less than three months, and rarely or never more than a year.

Dr. Hartmann mentioned that he had met with a case in St. Louis in which the period of incubation, so far as could be judged, was but little less than five years.

Dr. Biggs remarked that the answer to most of the questions which had been raised lay in the proof of the genuine nature of the disease with which Pasteur has been working. This is a difficult matter to determine from an independent point of view. When in Paris, however, he saw a number of cases of dogs with all the typical symptoms of rabies developed in the ordinary way, as these are described in the books. Although without any previous personal experience with the disease, he would not hesitate to make the diagnosis of rabies in them. It is an indisputable fact that Pasteur has for years been experimenting with a disease which almost invariably runs the same course and produces the same symptoms; the period of incubation in rabbits being always about fifteen days. If this affection is septicæmia, as has been claimed by some critics, it must be an entirely new form of the trouble. We know of no variety of septicæmia which has a period of incubation in rabbits of fifteen days, and after cultivation, of seven days; while in dogs it is longer. Again, we know of no other disease except rabies which produces the symptoms noted in these cases, and which always results in death. In dogs the period of incubation of septicæmia, it may be stated, is about eight or nine days.

Dr. Flint had suggested that in connection with the inoculations, control experiments should be made, such as the injection of bouillon without any portions of spinal marrow being added, etc.; but while this particular procedure has not been tried, so far as he was aware, it is a fact that these inoculations have been made subcutaneously and into the veins, instead of under the

dura mater after trephining, and the only difference that has been noted in the result has been that the period of incubation is longer under these circumstances. The reason why Pasteur adopted the method which he now employs was because he found after many experiments that with it the period of incubation is shorter, and the process more certain, than when any other is used.

As to the manifestations of rabies in rabbits, Pasteur distinctly declares that the disease has no definite manifestation in these animals. In them it is analogous to many forms of septicæmia; and it was on this account that he (Pasteur) was unwilling to accept the results of Fol's investigations, which were practically based on the pathological conditions observed in rabbits after experiments; therefore, the only way to test the true nature of the disease resulting from inoculation, is to inoculate dogs with the virus; and in them it manifests itself by symptoms which are believed to be unmistakable.

As to the protection against the disease of dogs which have been bitten by other rabid dogs, Pasteur asserts positively that the most complete protection has been afforded in numerous instances. These animals were placed in cages together with dogs which were indisputably rabid, and having been bitten by the latter, were afterward subjected to the prophylactic inoculations; and in not a single instance has rabies subsequently resulted in them. These experiments have been repeatedly tried under the supervision of the official commission appointed to investigate the matter; and this evidence would seem to be of the greatest possible importance in establishing Pasteur's claim.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, March 5, 1886.

THE SECOND VICE-PRESIDENT, GEORGE WILKINS, M.D., IN THE CHAIR.

GUNSHOT WOUND OF FRONTAL LOBES OF BRAIN; SURVIVAL OF PATIENT FOR EIGHT DAYS.

DR. WYATT JOHNSTON exhibited the brain of a man aged forty-three, who had shot himself because he was told he was suffering from phthisis. The weapon used was a revolver, carrying a No. 32 ball. The ball entered the left temporal region, one and a half inches above the zygoma, and half an inch behind the external angular process of the frontal lobe. The bullet pierced the dura mater, and entered the posterior part of the third left frontal convolution, thence through the left hemisphere and falx cerebri, and entered the right hemisphere at the posterior part of the first right frontal convolution, where it pierced the dura mater. From this point there was a superficial furrow, having a downward and backward direction. The bullet, slightly flattened, was found in the posterior inferior part of the right ascending frontal convolution. The track of the bullet showed extensive hemorrhagic softening. There was also extensive extravasation of blood between the membranes; the ventricles were uninjured. On examining the chest, a double acute tubercular pleurisy was found, and hypostatic pneumonia. The patient died eight days after the accident, and had never spoken, but he was conscious, and apparently understood questions asked him. There was no complete paralysis, but there were occasional slow movements of right arm, and the left leg was kept crossed over the right; no tremor or spasm of any kind.

MULTILOCULAR OVARIAN CYSTOMA.

DR. WM. GARDNER exhibited an ovarian tumor, and gave a brief account of the case. The woman, æt. forty-eight, married, but sterile, consulted him six years ago for a moderately large cystic tumor, with solid nodules in the pelvis. Menstruation was increased. She was advised against operation, but saw another surgeon, who explored through an abdominal incision, but apparently did not otherwise interfere, as she appeared some time afterward unchanged in her condition, except for the scar and a ventral hernia. She was then lost sight of till two months ago, when she was admitted, under his care, into the Montreal General Hospital. She stated that, a few months after the exploratory incision, she began to enlarge rapidly, and pressure symptoms became so distressing that her attending surgeon tapped her many times. Four months previous to admission the tumor ceased to enlarge.

The lower part of the abdominal walls and lower limbs were very œdematous; the whole abdomen, except the upper part, was elastic, indistinctly fluctuating, and dull on percussion; the hypochondriac and epigastric regions were tympanitic, but gave distinct wave fluctuation; menstruation had ceased eight months previously. Patient was eager for operation, although she was made fully to understand its serious character, and it was decided to give her the small chance which the operation offered.

On opening the abdomen the tumor was found to be universally adherent to parietes, intestines, bladder, and everything in the pelvis. In separating the adhesions, the intestines were torn several times, but promptly sutured. Above the tumor was an encysted collection of peritoneal fluid, with the intestines floating in it, under this lay a large, very thin, translucent cyst attached to the tumor. Hemorrhage, although not excessive, was severe enough, aided by the long and severe operation, to exhaust the patient, so that it soon became apparent that her chances were almost nil. The base of the tumor contained the uterus and a large mass of calcareous matter and myomatous nodules. It was included in a Tait's wire clamp, constricted, and then amputated. Bleeding being nearly arrested, the abdomen was closed, and a drainage tube inserted. The patient died half an hour after being put to bed. The tumor was a multilocular cystoma, the large cysts containing large masses of papilloma, nodules of which were also found on the parietes of the abdomen. The mass of calcareous matter measured three and a half by two inches.

DISEASE OF LUMBAR VERTEBRÆ WITH ACUTE PULMONARY TUBERCULOSIS.

DR. ROWELL exhibited the second, third, and fourth lumbar vertebræ, removed from a female patient who had died of acute pulmonary tuberculosis. The central parts of the body of each vertebra contained a small cavity filled with pus. The cavity in the second communicated with the vertebral canal. The lungs of the same patient, studded with tubercles, were also shown.

DR. ARMSTRONG said that the patient had been under

his care in the Woman's Hospital; she had severe lumbar pain, which was relieved by the application of a Sayre's jacket. However, her temperature keeping up, and chills and sweatings being of frequent occurrence, an incision was made and the lumbar vertebræ were examined, but no pus found. The patient died soon after, and the above described conditions of lungs and vertebræ were discovered.

Dr. Armstrong exhibited a pair of

CYSTIC OVARIES

he had removed from a young unmarried woman. One of the cysts was adherent throughout its whole extent; there was troublesome oozing which was difficult to overcome; but the patient made an excellent recovery.

FRAGMENTS OF ROCK CRYSTAL REMOVED FROM THE CORNEA.

Dr. Buller exhibited three small fragments of rock crystal (the largest 1.5 mm. in length), which he had removed from the cornea of a marble-worker. They had been projected into the eye from the chisel of another workman. The patient came to Dr. Buller about an hour after the accident, and two small incised wounds of the cornea were found. These were parallel to one another, about 1 mm. apart, and nearly opposite to the lower margin of the pupil. After carefully examining the parts with focal illumination, he failed to find any foreign body, and prescribed a solution of atropine and a cold water compress. The patient returned for instructions from day to day, but despite the treatment the eye became more and more inflamed, so Dr. Buller explored the wound with a fine cataract needle. He at once felt the needle come in contact with gritty particles, thus giving unmistakable evidence of the presence of a foreign body, which was wholly invisible. On moving one of the particles some aqueous humor escaped, showing conclusively that the foreign body had partly penetrated into the anterior chamber, and from being invisible, would be extremely likely to be pushed into the anterior chamber during any attempt at extraction. Now the man had some time before lost the other eye, so that it was of the utmost importance to save this one. The eye was placed under the influence of cocaine and the blade of a broad needle was passed through the cornea into the anterior chamber, in such a way that the part containing the foreign bodies rested upon the flat surface of the needle. It was an easy matter then to remove the particles of rock crystal with a fine cutting needle, and without the slightest chance of their being pushed into the anterior chamber, a mishap which would have led to disastrous consequences. The eye, freed from the source of irritation, made a rapid and satisfactory recovery.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, March 18, 1886.

The President, A. Jacobi, M.D., in the Chair.

THE RECENT DEATHS OF PROMINENT FELLOWS.

The Corresponding Secretary announced the death of ex-President Austin Flint, and of Drs. S. Oakley Vanderpoel and Gaspar Griswold, and moved that the Chair appoint a memorialist for each of the deceased. The motion being carried, the President stated that he would claim for himself the privilege of pronouncing a eulogy upon his illustrious predecessor, Dr. Flint, and that he would at a future meeting announce the memorialists for Drs. Vanderpoel and Griswold. He then said that he would appoint Dr. Stephen Smith to read a memoir of the late Dr. Alfred C. Post.

The discussion of the evening was on the subject of

GLYCOSURIA,

and was divided into two heads. The first was

THE SIGNIFICANCE OF SMALL QUANTITIES OF SUGAR IN THE URINE.

Dr. T. A. McBride said that in cases in which there is a small quantity of sugar in the urine, but no appreciable disease present, beside more or less disturbance of the nervous system, there is no question that great relief, and even possible cure, can be secured by appropriate treatment. In this class of cases, it is well known that sugar is frequently found in the urine in connection with pleurisy, phthisis, cardiac disease, cerebral hemorrhage, certain psychoses, and other affections.

It has been found that sugar, when existing in only small quantities in the urine, is not easily detected by the ordinary tests for this substance. Among the troubles which may be caused by its presence under these circumstances, however, may be mentioned: insomnia, so-called neurasthenia, paræsthesia, hemiparæsthesia, certain pareses, and even temporary hemiplegia. In all these conditions undoubtedly due to glycosuria, he had used the ordinary tests, and in many of them no indication of the presence of sugar was shown. To detect the sugar, it is necessary to filter the urine through blood charcoal, after which the charcoal is to be washed repeatedly with distilled water. After the second, third, or fourth washing, the sugar can be detected by Fehling's test. He had confirmed this test by means of the polariscope, and also by fermentation.

The amount of sugar found in these cases varies from a trace up to two and a half per cent., though as large a quantity as the latter is rare. In the treatment he uses diet, and as medicinal agents principally arsenic and Clemens's solution of bromide of arsenic. In conclusion, Dr. McBride said that he had to confess that he is at present somewhat at a loss how to determine what is diabetes and what is not. He saw so many cases of glycosuria without the thirst, emaciation, and other characteristic symptoms of true diabetes, that it is difficult to decide in the matter.

Dr. F. P. Kinnicutt said that Lauder Brunton found that after diluting the urine very considerably, and then testing in the ordinary way, he was often able to detect sugar in specimens in which, if the tests were made without the dilution, it was impossible to find a trace of it. Even in the case of normal urine, to which one or one and a half per cent. of sugar has been added, there often seems to be something present which permits the precipitation of the red oxide of copper.

Dr. Page said that there are three conditions in which sugar is found in the urine: first, in the urine of a healthy individual after eating sugar itself, or imbibing saccharine liquids; second, when found in great abundance, constituting the typical diabetes mellitus; and, third, when the quantity of sugar is small and intermittent. In both these latter conditions there is diabetes, but in the last-named the prognosis is much more favor-

able than in the other. Niemeyer mentions that diabetes is much more prevalent in men than in women, the proportion of cases being three to one; and while it generally occurs in men between the ages of thirty and forty, in women it is more often found at an earlier period of life. This, however, has not been his own experience, as he has found it more common in women than in men, and generally after the age of fifty years. In such cases it is usually intermittent, and not infrequently it has been the irritation of the vulva caused by the saccharine urine which has led him to make the examination for sugar.

In regard to the treatment, he said that he had no faith in any medicinal agent whatever. Opium may be of service at night in securing rest and preventing the frequent micturition which is often so annoying a symptom, but he did not believe that it had any curative power. He had heard Prof. Alonzo Clark express the same lack of faith in drugs, and when at Carlsbad last summer he had found that the physicians there who make a specialty of this disease, depend almost entirely upon diet and the waters of the springs. One great source of their success, he thought, was that at a place like Carlsbad patients could be kept much better under control than at their own homes, so that they would be willing to confine themselves scrupulously to the restricted diet imposed. When they went away from the Springs he had no doubt that they become worse again from imprudence in eating.

Dr. George B. Fowler said that when working in the laboratory of Prof. Dalton, in 1877, he had repeatedly found sugar in normal urine after the ingestion of sweets. It had, for some time, been known that sugar could not be detected by the ordinary tests under certain circumstances, and Dr. Dalton was accustomed to filter the urine through animal charcoal before applying the tests. If we take normal urine and add enough honey to it to make a thick gum, no precipitation of red oxide of copper will take place on the application of Trommer's test in the ordinary way. If, however, we imitate the method of Fehling's test by employing an excess of test-fluid and only a few drops of the saccharine urine, the precipitate will at once occur. This modification of Trommer's test he has found of great practical value. If sweets are taken freely, especially on an empty stomach, glycosuria is very apt to be produced, and hence when an individual consults him in whose urine he finds sugar, but not a high specific gravity, and who does not present the ordinary symptoms of diabetes, he always inquires whether he has habitually used sweets or suffers from defective digestion. Patients in which such a condition is found, as a rule, recover quickly under proper diet.

Dr. William H. Draper remarked that he had ceased to attach much importance to the occasional occurrence of very small quantities of sugar in the urine, for the reason explained by Dr. Fowler. He has found it very often, particularly in the lithæmic state, in which there are seen the evidences of intoxication. When there are excessive amounts of urates and also crystalline uric acid in the urine, sugar is very likely to be found. All these circumstances are to be attributed, in his opinion, to defective metabolism, and the treatment which renders the urine normal in other respects will also remove the sugar. As Dr. McBride remarked, it is difficult to say where diabetes really commences. Sugar is not infrequently found in the urine of patients having not only imperfectly assimilated hydrocarbons, but also imperfectly assimilated nitrogenous food, and, therefore, sugar is often to be regarded simply as an indication of dyspepsia. In true diabetes mellitus sugar is formed from azotized food.

Dr. Fowler said that he had forgotten to state that the substance which interferes with Trommer's test is the ammonia in the urine, which redissolves the red oxide of copper as soon as it is formed.

Dr. McBride said that uric acid will sometimes cause precipitation of oxide of copper. Sugar, when persistently present in small quantities in the urine, seems to indicate an excess of sugar in the blood, and it is the *persistent* presence of sugar which is important. It may be another kind of sugar, not derived from glycogen, but from the muscles. Ordinary sugar can be detected after dilution of the urine, as was mentioned; but this requires filtering through blood charcoal.

Dr. Draper said that he did not think we could distinguish any difference in the cases of nervous disturbance in connection with lithæmia, whether sugar was present in the urine or not. Bence Jones, of London, has remarked that the "sour disease," gout, is very closely allied to the "sweet disease," diabetes mellitus. Long ago he pointed out the important fact that gout and diabetes very frequently exist in the same families and even in the same individual.

Dr. McBride agreed with Dr. Draper; but he also claimed that sugar was the actual cause of nervous symptoms, just as uric acid and other agents might be.

Dr. E. D. Hudson, Jr., called attention to the importance of shock in the production of diabetes. Sugar has been found in connection with whooping-cough, the presence of enlarged bronchial glands, spasmodic asthma, and convulsions; and we are therefore led to conclude that it is the disturbance of the pneumogastric which affects the glycogenic function of the central nervous system.

The President remarked that in a great many persons, at times, sugar is found in the urine in small quantities which can be detected by the ordinary tests. As a rule, such patients are beyond middle life. He said that when he was a student he was taught that diabetes was a very rare disease, and that it was always fatal. It is true that the cases of diabetes in which the specific gravity of the urine ranges from 1.040 to 1.060 are very rare; but cases in which it ranges from 1.017 to 1.035 are very frequent, and they are by no means always of a mild character. Still, quite a large number of such patients live for a long time, and some get entirely well. A considerable proportion of these cases are in gouty individuals. When their general health is good, very little sugar is to be found in the urine; but when they begin to fatten up and take little exercise the quantity of sugar may be sufficient to produce pruritus vulvæ in the case of females.

When such patients contract other diseases, however, and especially pulmonary affections, they are in the greatest possible danger; and, as a rule, they will not live through an attack of pneumonia. Even though there may have been no signs at all in the urine for months or years before, if they get pneumonia, the most pronounced glycosuria is apt to become suddenly de-

veloped. Such a case was that of a physician, forty-two years of age, which he mentioned. He had formerly had diabetes, and was an expert in urinary examinations, but for six years his urine had been absolutely free from sugar, when he was taken ill with pneumonia. For two days he did well; but he was then seized with intense thirst, and suspecting that there was a return of his old trouble, he asked to have his urine tested for sugar. This was accordingly done, and sugar was found in large quantities. As soon as he was informed of the result, he remarked, "Now I will go," and two days afterward he was dead. Dr. Jacobi said that, in his experience, every such case was doomed.

He then went on to speak of four brothers, whose ages ranged from fifty-seven to thirty-nine or forty, all of whom are or have been the subjects of diabetes. The first was taken in England about ten years ago. He never was willing to observe any care in his diet; the affection has progressed, and he is now the subject of pulmonary disease, so that it is not difficult to see that his days are numbered. The second brother, on the contrary, used extreme care in his diet, and paid general attention to his health, and there has not been a trace of sugar in his urine for four years. In the case of the third brother there is an occasional return of glycosuria after excesses in diet; and the fourth and youngest brother is now also diabetic. This history shows that in a large number of cases the presence of sugar in the urine indicates defective assimilation. If this condition is not treated, it may result in persistent diabetes, and finally terminate in pulmonary disease. He would say, therefore, that sugar in small quantities does not signify much so long as a general good state of health is maintained; but it may be the source of great danger when other diseases set in.

Dr. Frederick A. Burrall then spoke on

THE TREATMENT OF DIABETES

and referred to the dietetic, hygienic, and medicinal factors. In speaking of the first, he said that while in the earlier stages of the disease the food containing saccharine and starchy matter is the source of the sugar in the urine, in advanced cases it is also derived from nitrogenous food and the tissues themselves. Although there is some dispute on this point, he thought that pure milk is probably good in diabetes; it has been said that the lactic acid is not converted into glucose. Glycerine had been recommended by some as a substitute for sugar, but in his own experience he had found that this increased the amount of sugar in the urine. The good effects of such agents as the alkalies may be due to the gouty diathesis in connection with diabetes. Loomis speaks well of skim milk as an exclusive diet, if the patient can be induced to live on it, and Tyson considers it better than any medicinal agent; but no exclusive method has been found entirely satisfactory.

Of medicinal agents which have been used by various authorities, there is a very long list. Of those which have seemed to prove the most valuable he mentioned codeia, which has been given in quantities of from fifteen to forty-seven grains daily; ergot, in doses of half a drachm of the fluid extract, increased to a drachm; lactic acid, of which Casstain gave from seventy-five to one hundred grains a day; Clemens's bromide of arsenic solution. While all these agents appear to have proved of more or less service in connection with a restricted diet, none of them has been known to have any effect without this.

Dr. Cauldwell said that his remarks would be confined entirely to the so-called specific, jambol. About three months ago he received a letter from London from a former student, in which he said this agent is now accepted in the East Indies as a cure for diabetes. He had tested it in healthy adults, and it had not produced any constant physiological effects. He had also prescribed it in four cases of well-marked diabetes. In all the patients, before taking the drug, the daily quantity of urine passed exceeded one hundred ounces, and in all the specific gravity of the urine was above 1.030. Sugar was also abundant, and all the ordinary symptoms of diabetes were present.

All the patients were treated alike, and were kept on anti-diabetic diet, with a moderate amount of toasted bread. Five grains of the powdered seed of jambol were given three times a day. In Case I., the beneficial effect was much pronounced. In two months the patient gained twelve pounds in weight, and the sugar entirely disappeared from the urine. It has remained absent for the past month. In Case II., the remedy was given for four weeks without any apparent effect. In Case III., a gradual improvement has taken place. The daily quantity of urine passed is reduced to 82 ounces, and the specific gravity to 1.030; but sugar is still abundant. In Case IV., after five weeks of treatment, the daily quantity of urine was reduced to 50 ounces, and the specific gravity to 1.028. The patient has also gained ten pounds in weight.

In addition to these cases, Dr. Cauldwell said that through the courtesy of Dr. Samuel Alexander, he was enabled to report two others, which had been under the care of Drs. Keyes and Alexander. In the first of these the improvement was very satisfactory; but in the second there was no improvement whatever.

In four cases out of six, therefore, the use of jambol had been followed by improvement, while in two it had proved a failure. In other words, in two-thirds of this small number of cases, it had seemed beneficial, and in one-third not. He regretted that Dr. Weber was not present, as he understood that he had used this agent in a larger number of cases than himself.

Dr. Draper remarked that, excluding the dietetic treatment, it may be truly said that the treatment of this disease is as purely empirical as our knowledge of its pathology is speculative. There is no trustworthy testimony that drugs alone, without the more or less complete restrictions of saccharine and starchy food, are of any service; and while medicinal agents are undeniably useful as adjuncts, his experience led him to believe more and more that the dietetic and hygienic management constitute the essential factor in the successful treatment of this affection. The majority of cases of diabetes belong to the form of the disease known as benign. The severe cases, in which the sugar is derived not only from the hydrocarbons but from the nitrogenous food also, generally occur in persons who have received some severe shock or have been suffering from grave tissue changes in the system. In these, unfortunately, drugs are of little or no value.

Dr. Draper then said he would speak of but three agents which had proved of especial service in his

hands: codeia, sulphide of calcium, and the alkaline carbonates. Opium, he thought, is a great boon to the diabetic. In regard to the sulphide of calcium, he said that his attention had first been called to it by Dr. Nathaniel Husted, formerly of New York, but now residing in Tarrytown on the Hudson. Dr. Husted, some years ago, while suffering from diabetes, employed sulphide of calcium in his own case for the relief of furuncles, with which he was at the time affected, and he was surprised to find that under its use the sugar disappeared from his urine. He remains well up to the present time, and is able to live on a simple mixed diet without causing any return of the glycosuria. He, himself, has found it a useful adjunct; prescribing it in one-fourth and one-half grain doses before meals. It is followed with good results in a large number of cases, especially in gouty patients, and he believes that it enables the subject of diabetes to indulge in a greater variety of diet than he could otherwise do.

As to the alkaline carbonates, he had found them very valuable. He believed that both gout and diabetes are not infrequently due to defective metabolism; and it is, therefore, a rational treatment under the circumstances to stimulate oxidation.

A gentleman present remarked that Dr. Husted still claimed to have excellent results with the sulphide of calcium, and that he had heard him say that when given for a sufficiently long period, he had never yet met with a case in which benefit was not derived from it. Dr. Husted considers Merck's sulphide of calcium the only reliable article in the market, and has never met with as good results from the product of any other manufacturer.

Dr. M. G. Dadirrian said that in Constantinople and other points in the East, matozoon, or fermented milk food, is very largely used in the treatment of diabetes. In this preparation, which originated in Armenia many centuries ago, there is no sugar, the sugar being converted into lactic acid; and he believes that it is a very valuable adjuvant in this affection.

Dr. Robert F. Weir alluded to the subject of gangrene in connection with diabetes, and described three such cases which had recently come under his own observation. In looking up the literature of the matter, he had found extremely meagre information. In regard to amputation for this condition, many cases were reported of the small members, such as fingers and toes; but he had been able to find the record of but nine amputations of the thigh, and in only one of these did recovery take place. Under the circumstances he had naturally hesitated to perform this operation.

Dr. S. Varick said that there is one point in regard to the treatment of diabetes which had not received the attention in the present discussion which he thought its importance demanded. There are certain facts concerning the disease which he regarded as settled. In the first place, while glycogen is found in some of the solids and fluids of the body, and most commonly in the liver and muscles, it is a function of the liver to elaborate glycogen; and in diabetes this glycogenic function of the liver is increased. The question is, how to base our treatment on these facts. If it were in our power, we would, of course, check this glycogenic function; but, failing in this, our endeavor is to diminish the supply of material. It is important to follow the pointing of physiology as regards the muscles; and muscular exercise, both passive and active, is, therefore, of great importance in the treatment of diabetes. In this affection it is common to find the patient constantly subject to lassitude and indolence, and the physician should endeavor to overcome this by encouraging the diabetic to take exercise. Thus, he can make it a rule that his patient shall have so much bread after he has taken so much exercise. In the feeble cases massage is of very great value, and the point that he made was, that appropriate exercise is of much benefit as suitable diet.

Dr. Draper remarked that enforced exercise is liable to be much abused. It is a great error in serious cases, he thought, to cause the patient to take too much exercise, and grave accidents not infrequently result from overfatigue.

Dr. Kinnicutt mentioned, in this connection, the case of a patient who died from diabetic coma soon after arriving at the hospital; this being the result, as he believed, of the fatigue incident to a journey of some distance. In regard to amputations for gangrene associated with diabetes, he knew of a case, two weeks ago, in this city, in which the patient died of diabetic coma forty-eight hours after amputation of the thigh, for this condition.

NEWS ITEMS.

University of Edinburgh. — The new chairs of Comparative Embryology and Natural Philosophy have been respectively filled by J. Brook and G. J. Romanes.

American Surgical Association.—The annual meeting of the American Surgical Association will be held in Washington, April 28th, 29th, 30th, and May 1st. This will be an important meeting, and a full attendance of the Fellows is desired.

Appointment of Dr. Stratford.—The Trustees of the College of the City of New York have appointed William Stratford, M.D., Ph.D., to the chair of Professor of Natural History, Physiology, and Hygiene, made vacant by the death of the late Dr. John C. Draper.

Prizes of the French Academy of Medicine.—The following prizes will be awarded in December, 1886: Hygiene of Infancy: Relation of Rachitis and Syphilis in Infancy, sixteen hundred francs. Prix St.-Lager: Fifteen hundred francs as a recompense for the experimentation which shall produce thyroid tumor in animals as a result of the ingestion of substances extracted from the water or earth of regions where goitre is endemic.

French Surgical Congress.—The second session of the French Congress of Surgeons will be held this year in Paris from the 18th to the 22d of October.

The subjects proposed for general discussion, and to which the first four days are to be devoted, are:

1. Nature, pathogenesis, and treatment of tetanus.
2. Nephrotomy and nephrectomy.
3. Orthopædic resections.
4. Operative intervention in irreducible traumatic luxations.

Death of Professor Courty,—The death of Dr. Courty, Professor in the Surgical Clinic in the Montpellier Faculty, and one of the founders of the *Annales de Gynécologie et Obstetrique*, has just been announced.

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ORIGINAL LECTURES.

CARTWRIGHT LECTURES.

ON CERTAIN PROBLEMS IN THE PHYSIOLOGY OF THE BLOOD CORPUSCLES.

Delivered before the Association of the Alumni of the College of Physicians and Surgeons, New York, March 27, 1886.

BY WILLIAM OSLER, M.D.,

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LECTURE II.

DEGENERATION AND REGENERATION OF THE CORPUSCLES.

THE conception of the blood as a fluid tissue, the corpuscles representing the cells and the plasma the matrix, is not a very happy one, as both cell elements and matrix present peculiarities unknown in any other tissue. Rather is it to be regarded as an internal medium, to use Bernard's phrase, bearing the same relation to the constituent tissues as the external medium does to the individual.

In spite of local variations, the composition and characters of the blood present a remarkable uniformity, the result of the combined action of the receptive, excretory, and formative tissues, which are concerned in the digestion and absorption of food, in the discharge of waste, and in the renewal of worn-out elements.

The maintenance of the histological uniformity of the blood is absolutely dependent upon the integrity of these processes. In health the waste and repair of the corpuscles are not accompanied by any striking or obvious phenomena. The corpuscles present a remarkable sameness, and we cannot pick out with readiness the old elements ready to die, or the new ones which have just made their appearance. This it is which makes the blood such a puzzle, for the corpuscles, so far as observation goes, neither die nor are born in the circulating fluid, but appear to enter it as perfect elements and are removed from it before they are so changed as to be no longer recognizable.

That the red corpuscles in health are constantly degenerating and as constantly being reproduced, is universally acknowledged, though the facts upon which this belief is based are not very numerous. There is evidence that the coloring matters of the bile and of urine are derived from the hæmoglobin, and to supply their daily amount many corpuscles must be destroyed, and to replace which new ones must be formed. The variations in number at different times and under different conditions, indicate that waste and repair are ceaseless processes. Moreover, there is the direct evidence in the presence of degenerating red corpuscles in certain organs, spleen and bone marrow. Our very imperfect knowledge of the details of degeneration and regeneration of the corpuscles in health has been supplemented to some extent by experiment and by the study of the blood in disease, and I propose in this lecture to touch upon the salient features of these processes so far as we at present understand them. As it is difficult to separate the two conditions, which in many instances coexist, I shall first take up the consideration of the state of the corpuscles in anæmia, as induced either by increased destruction or loss of the corpuscles, or as it results from scanty production. The loss may be sudden, as from hemorrhage or acute poisons, or be a slow gradual process, as in fever and chronic poisoning. Anæmia from imperfect production of cells may result from primary changes in the cytogenic tissues, or be a secondary effect of imperfect nutrition, but in either case the reduction in the number of the red corpuscles is by far the most important change, and upon this the symptoms mainly depend.

In health the red corpuscles present a remarkable uniformity in size, or perhaps it is more correct to say that the variations which occur are within very narrow limits. The large proportion of the corpuscles have a diameter of 7.5 μ, but there are a few to be found which measure a micromillimetre less or more, 6.5 or 8.5 μ. These slightly smaller and slightly larger forms are not numerous in normal blood, not so numerous, I think, as Hayem's[1] researches would indicate, for he places the medium-sized at 75 per cent., the smaller forms at 12 per cent., and the larger at 12 per cent. Gram,[2] who has made a number of careful observations on this point, finds the average diameter to be a little more than 7.5 μ (7.8 μ), but the percentage of corpuscles of less or greater diameter varies greatly in different individuals. In the newborn, and for some time after birth, the maximum and minimum diameter of the red corpuscle presents a much wider range, the variations being from 10.3 μ to 3.3 μ. One of the most striking alterations of the red corpuscles in certain diseased states is a reversion to this embryonic or infantile condition, with a variation in the size of individual corpuscles to a degree which is truly remarkable. Instead of an extreme variation of 2 μ as in health, the range between the smallest and largest forms may be from 8 μ to 10 μ, or even more. Thus, minute corpuscles may be measured from 2.5 μ to 3.5 μ while contiguous cells may be as much as 10, 12 or even 14 μ. To these abnormal forms the terms microcytes and megalocytes have been appropriately given.

Microcytes occur normally in the blood of the embryo (Fig. 10, *b*) and newborn, but are rarely to be seen in a healthy adult. In disease they are most abundant in anæmia, whether from hemorrhage or as a result of changes in the cytogenic organs, or secondary to disease of important viscera. When the attention of observers was first directed to these bodies it was thought that they might be of diagnostic import in

[1] Lecons sur les modifications du Sang, 1882.

[2] Fortschritte der Medecin, 1884.

certain forms of anæmia, but we know now that they occur—in variable numbers, it is true—in all forms, in chlorosis, splenic anæmia, pernicious anæmia, leukæmia, Hodgkin's disease, and in the anæmia of cancer, phthisis, and other chronic affections. I must say, however, that so far as my personal experience goes I have not met with them so uniformly or so abundantly in any condition as in those cases which we designate by Biermer's name of progressive pernicious

Fig. 1.

Outlines of red corpuscles in a case of profound anæmia. 1, 1. Normal corpuscles. 2. Large red corpuscle—megalocyte. 3, 3. Very irregular forms—poikilocytes. 4. Very small, deep red corpuscles—microcytes.

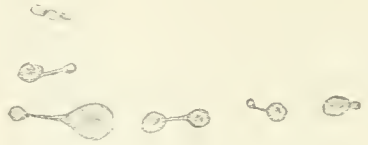
anæmia. In what may be called the primary anæmias they are almost invariably to be found, while in the secondary form they are variable and may be absent. There is unfortunately a difference of opinion as to the nature and origin of the microcytes, some regarding them as disintegrated remnants of corpuscles, others as young forms in process of development. Possibly both views may be correct. The small, spherical bodies of a deep red color, 1.5–2.5 μ in diameter, should, perhaps, be distinguished from the forms slightly larger, more distinctly discoid, and less deeply tinted. That they may result from changes in the ordinary red corpuscles is, I think, certain. I have frequently noticed that they appeared to increase in a slide kept for observation. They resemble, too, particularly the small deep red ones, the fragments into which the red cells disintegrate under the influence of the induction stream and of various solutions. In a freshly prepared slide of anæmic blood firm pressure on the top cover will sometimes be sufficient to produce a large number of microcytes which result from the destruction of the red corpuscles by pressure. They may, indeed, be observed in process of formation as shown at Figs. 2 and 3. Normal blood in Pacini's fluid does not often show

Fig. 2.

Extreme poikilocytosis in blood from anæmic patient, examined in Pacini's fluid. It illustrates also a possible mode of origin of the microcytes.

special changes in the form of the corpuscles, but the corpuscles, in cases of profound anæmia, may become in it very irregular in outline and deeply fissured as sketched at Fig. 2, and portions may separate and appear in the field as microcytes. In the bone marrow, too, I have often noted a somewhat similar process (Fig. 3),

Fig. 3.



Origin of microcytes from red corpuscles by process of budding and fission. Specimen from red marrow.

and by a sort of budding and fission many small forms may arise. These microcytes are not always to be regarded as a result of post-mortem change, they may be seen in blood examined with the greatest possible rapidity after removal. Whether the slightly larger form of microcytes from 2.5 to 5 μ, and which are often less deeply tinted, arise in the same way is still an unsettled question. They occur with the others, but are regarded, as I shall point out later, by many good observers as developing forms.

The *megalocytes* have attracted less attention than the smaller forms, but are equally curious. The term may be applied to forms above 8.5 μ or 9 μ in diameter. They may reach an extraordinary size, 12, 14, and even 15 μ. They are very constant elements in cases of pernicious anæmia, and also occur in chlorosis and leukæmia. Gram[1] has made the interesting observation, which I have been able to confirm, that these forms occur in numbers in cases of icterus. He also states that ordinary red corpuscles placed in icteric serum (of ascites in cirrhosis) seem to increase somewhat in size. We may call to mind in this connection the peculiar lemon or subicteroid tint of the skin in many cases of pernicious anæmia, and possibly there may exist in the blood-serum some element—the product of destruction in the hæmoglobin—which may act upon the red cells and cause them to assume a more flattened form. These megalocytes often show the most eccentric changes in outline, to which I shall shortly refer. When I speak of the development of the corpuscles, I shall return again to these forms.

In the normal red corpuscles regularity in outline is not less constant than uniformity in size, but in the blood of the various anæmias we now recognize the loss of this character as a very distinctive feature. Here, also, many of us erred in supposing this condition to be peculiar to pernicious anæmia, the disease in which these irregular forms were first accurately described. Quincke called them *poikilocytes*, a term which has been very generally adopted. At Figs. 1 and 2 this condition is represented. The corpuscles may present the most remarkable shapes, ovoid, elongated, pyramidal, balloon-shapes, with indented edges, or rods, either straight or bent at right angles. Many of these bizarre forms are scarcely recognizable at first as red corpuscles. I still hold that we meet with these forms in a more extreme degree in cases of pernicious anæmia than in any other disease, but they occur also in the anæmia of phthisis, cancer, and inanition. This is a physical change depending probably upon alterations

[1] Fortschritte der Medicin, Bd. ii.

in the blood serum. It is not induced in the healthy corpuscles by dilution of the serum or slight grades of concentration or by any of the reagents which tend to produce crenation. In Pacini's fluid the corpuscles of anæmic blood may sometimes be observed to become much more irregular in form (Fig. 2).

Percentage of Hæmoglobin.—We know as yet little or nothing of the processes associated with the production of the coloring matter of the corpuscles. In a state of health the percentage of hæmoglobin in each cell is tolerably definite, varying within very slight limits. In diseased conditions we have learned to recognize two remarkable changes in the relation of the coloring matter of the corpuscles. One is the observation made some years ago by Duncan (1867) that the hæmoglobin in chlorosis was reduced out of proportion to the reduction of the corpuscles, so that the individual worth of each red corpuscle in coloring matter might be very greatly lowered. The true anæmia might be much greater than the number of red corpuscles per cubic millimetre might indicate. Subsequent researches have fully borne out this fact, for which, however, we have as yet no suitable explanation. The pallor of the corpuscles may even be recognized with the microscope. In ordinary anæmia from hemorrhage or organic disease, the average worth in hæmoglobin of each corpuscle usually remains unaltered and the percentage of coloring matter corresponds closely with the percentage of the corpuscles, but in certain cases of pernicious anæmia the interesting fact has been ascertained that the percentage of hæmoglobin in each corpuscle is increased, and the anæmia in reality may not be so great as the reduction in the number of red corpuscles would appear to indicate. The individual worth of each corpuscle in hæmoglobin may be actually doubled and the heightened color be evident on microscopic examination. These two facts, intensely interesting and suggestive, may be said to comprise our knowledge of the changes in hæmoglobin percentage in the corpuscles in disease, and they serve as a background against which to display our ignorance of this most essential feature in hæmatogenesis.

Nucleated Red Corpuscles.—In anæmic states there may be present in blood, nucleated red corpuscles such as normally occur in the blood of the embryo, and such as are present in the red marrow of the bones. I have not met with these elements so frequently as the statements of certain observers (Ehrlich) would lead us to suppose. Certainly they do not occur in all cases of profound anæmia. I have met with them in leukæmia in larger numbers than in any other state. (Fig. 4.)

Fig. 4.

Nucleated red blood-corpuscles from blood in case of leukæmia.

They present characters identical with the nucleated red cells, which I shall speak of shortly in connection with the regeneration of the corpuscles. They are usually a little larger than the ordinary red corpuscles, and the tint may be slightly paler. The nucleus may be seen in process of division, and I have seen corpuscles in process of fission, identical in appearance with those long ago described and figured by Kölliker, as occurring in the blood of the embryo. They may be not infrequently found in groups of three or four, close together, or even in contact, as if the group had resulted from the division of a single corpuscle. I was particularly struck with this feature in one case of leukæmia in which they were very abundant, and I regard the explanation just given as a very likely one in the light of the recent observations of Bizzozero, upon the rapidity of the process of division in these forms. That they originate in the bone marrow there can be no doubt, and in my experience it is just in those conditions in which this tissue is hyperplastic, that they occur in the blood.

A rare and odd element in the blood is the *corpuscle containing red blood-corpuscles.* Several observers have noticed the presence of red cells inside colorless corpuscles in the circulating blood. It is very uncommon, and the sketches at Fig. 5 represent the only examples

Fig. 5.

Corpuscles containing red blood-corpuscles. 1. From blood of child at term. 2. From blood of a leukæmic patient.

which I have met with. Considering the abundance of these cells in the marrow, spleen, and lymph glands in certain states, it is surprising that we do not find them more often in the blood. It is quite possible, however, that the colorless corpuscle circulating in the blood may itself take up a red cell into its interior just as it may an oil drop or a particle of pigment. I have a sketch of a colorless corpuscle of the blood of the frog, with three or four human red corpuscles in its interior, which it had *eaten.* I have sought in vain in chronic malaria, for evidence that the leucocytes in the blood take the corpuscles entire into their interior in the formation of the black pigment. They would appear to take in the disintegrated particles, possibly in the spleen and liver, but not the entire cells.

It is interesting to compare with the sketch I have thus given of the state of the corpuscles in anæmia with the condition of the blood in the acute anæmia following a profuse hemorrhage, either accidental or experimentally induced. With our present knowledge, there is a really serious difficulty in deciding just what features of the blood indicate degeneration and what a process of regeneration. Thus, the microcytes, as I have stated, are regarded by some as evidence of a retrograde process, by others as indicating repair of the waste. In an animal deprived of one-third of the amount of blood, or in an individual after a severe prostrating hemorrhage, the changes noted are almost identical with those already described. 1st. The red corpuscles display irregularity in size and shape. The microcytes are numerous and resemble in all respects those of chronic anæmia. The larger forms of red corpuscles are not so constant. Poikilocytes also occur. As the percentage of red cells approaches the normal,

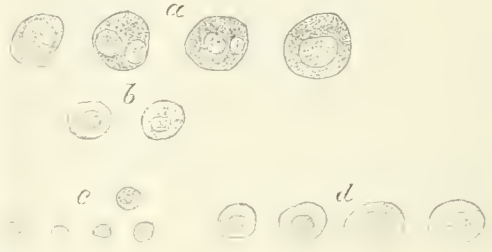
these irregularities diminish in a marked manner. 2d. The colorless corpuscles are relatively, and may be even absolutely increased in number. This doubtless is the result, in part, of a relatively smaller loss in white corpuscles in consequence of their adhesive, wall-loving property, and in part, to the flooding of the blood current with leucocytes poured in with the copious flow of lymph which takes place to make up the volume of blood. 3d. The nucleated red corpuscles may appear. In the experimentally induced anæmia in animals (dogs) they are more abundant than after profuse hemorrhage in man (cirrhosis, hæmoptysis). 4th. There is a marked increase in the number of the blood plaques.

Regeneration of the Corpuscles.—There is probably no subject in physiology upon which opinions differ more widely than in the mode of formation of the corpuscles—particularly the red—after birth. The possibility of a solution of the question seems to have been offered in the discovery of the blood-forming function of the red marrow by Neumann and Bizzozero, and the positive assertions of Hayem regarding the blood plaque and its connection with regeneration, have served to arouse again the interest in this important question.

I propose to lay before you briefly a statement of the current views, as interpreted in the light of more recent investigations, and I shall first direct your attention to the study of the formation of red corpuscles in the *bone marrow*.

I begin with this, as I here feel more at home, having for some years been an observer of this tissue in various states, and having arrived at certain conclusions which appear to me justifiable. The red marrow which in the newborn and young child occupies the bone cavities of the entire body, is confined in the adult to the cancellæ of the short and flat bones, but even with this limitation the entire bulk is very great, and if massed as one organ would exceed considerably the volume of the spleen. Without entering into preliminary histological details on the structure of the marrow, which are now incorporated in the text-books, I shall proceed at once to the consideration of the cell elements of this tissue. With a fine capillary pipette a small quantity of the soft red marrow is placed upon a slide without any reagent and a thin cover applied with gentle pressure so as to procure a layer of uniform thinness. The plasma of the marrow is usually quite sufficient, and there is serious objection to the addition of any reagent, as the delicate colored stroma of many of the cells may be at once altered. I feel sure that neglect of this precaution, so strongly emphasized by Neumann, has time and again prevented observers from seeing the very objects they were in search of, and they have ended with a denial of their existence (Rutherford, *Histology*). Examined in this manner we can usually see the following elements: 1. Ordinary marrow cells, (*a*) with coarsely granular protoplasm (Fig. 7, *a*), coarser-looking than that of a colorless blood-corpuscle. The nuclei may not be apparent at first, but they gradually become distinct, two or three in number, oval, round, or reniform in shape and vesicular in character. On the warm stage these elements display feeble amœboid movements.

Fig. 7.



Cell elements of red marrow. *a*. Large granular marrow cells. *b*. Smaller, more vesicular cells. *c*. Free nuclei, or small lymphoid cells, some of which may be evenly surrounded with a delicate rim of protoplasm. *d*. Corpuscles with clear, translucent protoplasm.

Fig. 6.

a. 1, 2, 3. Spleen cells containing red blood-corpuscles. *b*. From marrow; 1, cell containing nine red corpuscles; 2, cell with reddish granular pigment; 3, fusiform cell containing a single red corpuscle. *c*. Connective tissue corpuscle from subcutaneous tissue of young rat, showing the intracellular development of red blood-corpuscles.

b. Smaller cells about the size of colorless corpuscles with more solid nuclei and less granular body protoplasm; they are not so numerous as the larger cells and some of them may be colorless blood-corpuscles.

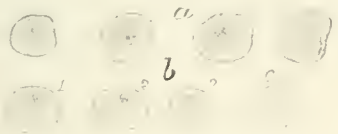
2. Marrow cells (9 to 12 μ in diameter) with smooth homogeneous protoplasm (Fig. 7, *d*) and finely granular nuclei, indistinct on first examination, but becoming more apparent in a few minutes. The protoplasm surrounding the nucleus is translucent, homogeneous, colorless, and variable in amount. There may be a single large nucleus surrounded by a narrow rim, or there may be a dumbbell-shaped nucleus, or it may be divided into two, or even three. The process of indirect

division of the nucleus can be well traced in these forms. Certain of the cells may present the faintest possible tint of color, and as they are carried about among the other corpuscles they show a peculiar flexibility.

3. Small lymphoid elements, resembling free nuclei; solid-looking, homogeneous, 2.5–5 μ in diameter, Fig. 7, *c*. They resemble the smallest lymph corpuscles, but about many of them no distinct rim of protoplasm can be seen. In others there is a faint border of protoplasm. These bodies are variable in number but they may be regarded as constant elements of the red marrow. Identical structures may be found in the spleen, Fig. 11, 4. They are well described by Norris as the "primary lymph cell."

4. Nucleated red corpuscles, which we may regard as the special element of the red marrow, and which are present at all periods of life, Fig. 8, *a*. They range in

Fig. 8.



Nucleated red cells of marrow, illustrating mode of development into the ordinary non-nucleated red corpuscle. *a*. Common forms of the colored nucleated cells of red marrow. *b*. 1, 2, 3. Gradual disappearance of the nucleus. *c*. Large non-nucleated red corpuscle resembling 2 and 3 of *b*, in all respects save in the absence of any trace of nucleus.

size from 6 μ to 12 μ, and are circular or slightly ovoid in shape. When freshly examined the protoplasm is homogeneous, clear, and the nucleus indistinct. The color is of all grades up to the intensity of an ordinary red corpuscle. As they float about in the current they show the flexibility and elasticity of the ordinary colored forms. The nucleus may be single and large, and is frequently seen in all stages of division. It is not colored. In certain cells there are appearances which indicate that the nucleus undergoes changes prior to

Fig. 9.

Nucleated red corpuscles, illustrating the migration of the nucleus from the cell, a process not infrequently seen in the red marrow.

disappearing, becoming granular and indistinct. In some specimens the nucleus can be seen adherent to the edge of the cell as if in process of migration from it (Fig. 9), and bodies of a similar appearance may be seen in the immediate vicinity of the red cells.

5. Red corpuscles of ordinary form and appearance. Upon their abundance or paucity depend the color of the marrow. In addition to the usual biconcave disks there are commonly megalocytes, especially if the marrow is hyperplastic, and a variable number of microcytes. The larger corpuscles are, I think, more frequent than the smaller ones.

6. Myeloplaques or giant cells, the description of which need not detain us, and

7. Corpuscles containing red blood cells (Fig. 6, *b*, 1). Some of these are evidently collections of red corpuscles undergoing disintegration to form the cells containing granular pigment (Fig. 6, *b*, 2), while others, resembling rather the giant cells (Fig. 6, *b*, 3), may possibly bear a different interpretation.

The chief interest centres in the nucleated red corpuscle of the marrow and of the spleen. From what does it originate? What is the process of its conversion into the ordinary red disk? All are agreed as to its importance in blood-making. It is the earliest red corpuscle in the embryo; it is constant in the cytogenic tissues of all animals, and it would be unreasonable in the highest degree to suppose that in the red marrow of the adult it was present for any other purpose. Moreover, in states of anæmia and after bleeding, the nucleated red corpuscles increase in the bone marrow and even appear (overflow) in the blood; and lastly, Bizzozero has watched the process of division, which may occur with remarkable rapidity, within fifteen minutes. My observations lead me to regard the nucleated red corpuscle as the product of transformation of the clear-bordered homogeneous marrow cell, as all grades of tint can be seen, between cells with scarcely a trace and strongly colored forms. There is no essential difference apparent in the body protoplasm, in both it is smooth, flexible, and translucent. It is not difficult to outline corpuscles in series from those without a trace of color to forms well and clearly tinted. The colorless marrow cells with clear-bordered protoplasm appear to be the descendants of the solid lymphoid cells—the primary lymph corpuscles—the protoleucocyte—which gradually becomes surrounded by a zone of homogeneous protoplasm. Certainly intermediate gradations can be seen between the forms figured at Fig. 7, *c*, and the smaller corpuscles at Fig. 7, *d*. The process of transformation of the nucleated red into the ordinary forms, occurs, I believe, by the gradual disappearance of the nucleus, as shown at Fig. 8, *b*, 1, 2, and 3. It seems impossible to draw any other conclusion from a study of such cells, and the small granular remnants which they contain may be the sole means of distinguishing them from ordinary red corpuscles. Very many observers have recorded the fact of the migration of the nucleus from the cell, and it may be seen in all stages of the process as represented at Fig. 9, but I have not been able to convince myself that this is anything but a post-mortem change. Certainly in the fresh marrow there are not nearly so many corpuscles with nuclei partially extruded, as in a specimen kept for twenty-four hours. Rindfleisch regards this as the normal mode of transformation, and we need additional careful observation on the point. In favor of the view that the nucleus undergoes disintegration is the fact that a similar process may be traced in the nucleated red blood cells of the embryo, as shown at Fig. 10, *a*, and as the cells are identical in appearance and probably in origin, this may be regarded as strong confirmative evidence. Bizzozero, whose careful study of this question entitles his opinion to the greatest consideration, regards the nucleated red corpuscle as a fixed and constant element derived, by fission, from preëxisting forms of the same kind, and not by any process of development from colorless cells of the marrow.

The nucleated red corpuscles are slightly larger than

ordinary blood-corpuscles, and in size resemble the megalocytes which are usually abundant in the bone-

FIG. 10.

Blood of embryo, four months. *a*. 1, 2, 3, 4. Nucleated red corpuscles. In 4 the same granular disintegrated appearance of the nucleus as in marrow cells. *b*. 1, microcyte; 2, megalocyte; 3, ordinary red corpuscle.

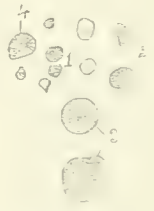
marrow. Such a cell as is represented at Fig. 8, *b*, 4, differs in appearance from those at *b*, 1, 2, 3, solely in the absence of nuclear remnants. In the further process of development into the ordinary red corpuscle, we must suppose condensation of the stroma and a change from a flattened cell to a biconcave disk. In anæmia the megalocytes which may be so abundant in the blood are to be regarded as imperfectly formed corpuscles, which, from causes as yet unknown to us, have not attained their proper form.

Possibly in other ways the spleen and marrow elements may participate in blood formation. I have already referred to the process of budding which may be seen in certain of the red cells of the marrow (Fig. 3) and of the spleen, and Malassez looks upon these gemmæ as capable of development into ordinary red forms.[1] The difficulty is one of interpretation; the process can be readily followed, but, as I mentioned, it is probably a physical change.

Within the large myeloplaques and also in the elongated cells of the stroma of the marrow, there can be seen, occasionally, red corpuscles, which suggest *development* not *disintegration;* inasmuch as the corpuscles are in smaller number and show no traces of degeneration. They are figured at 6 *a*, 1, 2, 3, from the spleen, and at 6 *b*, 3, from the marrow. I have been struck with the close resemblance of such cells to those in the subcutaneous tissue of the young rat, in which the process of intracellular development of red corpuscles can be readily traced, as shown by Mr. Schäfer. Fig. 6 *c*, represents one of these connective tissue corpuscles with four developing red cells in its protoplasm. It is quite possible that in the reversion to the embryonic or fœtal state of the bone-marrow, these cells may resume their hæmatogenous function, which seems to be a widely distributed property in the protoplasm of mesoblastic (parablastic?) elements.

The relation of the plaque to blood formation is still undetermined, and the most diverse views prevail among those who have studied the question. Hayem argues that they are the true *hæmatoblasts*, and the red corpuscles arise directly from them, basing his opinion upon the following grounds: 1. The shape of the plaque is discoid, resembling a miniature blood cell; 2. The faint tint of color which he says may be observed in them; 3. The remarkable gradations in size which they present, so that a complete series of forms may be traced from the smallest plaque to a common blood disk; 4. Their paucity in the healthy adult, their abundance in the young, and in all conditions in which blood formation is rapidly going on; 5. Their occurrence in the cells of the blastoderm. These views of Hayem have met with active opposition from a large majority of the observers who have studied the blood plaque. I have never been able to detect coloration in the plaque, but in the larger forms the pale gray-white aspect of the protoplasm seems most distinct. I cannot see any connection between the blood plaque and the ordinary microcyte, which is of a deep red tint, even when as small as the smaller plaques. The larger microcytes, 4–5 μ, which are usually paler in tint, have a homogeneous and distinctly colored stroma, precisely similar to the red corpuscle, and unlike plaques of the same size. Fig. 11 gives a representation of a

FIG. 11.



From spleen. 1. Blood plaques, colorless and varying a little in size. 2. Microcytes of a deep red color. 3. Two ordinary red corpuscles. 4. A solid, translucent, lymphoid cell or free nucleus.

group of elements from the spleen with the blood plaques, five or six in number: 1, are of various sizes, and presented a pale, faintly granular protoplasm; at 2, were seen two microcytes, resembling more closely miniature blood disks than the form represented at Figs. 1 and 4, but though resembling in size the larger plaques, the appearance is totally different, and forms intermediate between them are not seen. A strong point in Hayem's theory is the abundance of the plaques under the very conditions in which the corpuscular production goes on rapidly: (1) in the embryo and newborn, (2) after hemorrhages, (3) in the stage of convalescence from acute diseases. So, also, in chronic wasting diseases, and in certain forms of anæmia, their prevalence may be reasonably explained by failure to develop into more mature forms. We enter here the region of hypothesis, and it must remain for future observers to determine the precise position of the plaque in the development of the corpuscles. There is remarkable unanimity of opinion among those who have lately worked at the subject, to the effect that the evidence is at present altogether insufficient. Afanassiew is an exception, but he holds that the plaque develops into the nucleated red blood-corpuscle, the nucleus of which is in turn extruded and becomes a plaque.

The observations of the past ten or twelve years have led us away from the old view that the red cells are derived from the colorless corpuscles. Except in the

[1] Creighton has described the formation of colored corpuscles in blood cysts by budding from embryonic cells lining their walls, and a few years ago Johnstone maintained (Seguin's Archives, vol. vi.) that the red cells developed by budding from the granular protoplasm of the adenoid reticulum of the spleen and lymph glands.

mode I have indicated in the marrow, there is no evidence in favor of the conversion of the colorless corpuscles into colored forms, and the opinion is gaining ground daily that they constitute separate elements with important functions quite apart from regeneration of the red cells. They constitute so many masses of primitive or basis-protoplasm which may be called upon in the repair and reproduction of tissues and in the healing of wounds. They act as scavengers—*phagocytes*—in the removal of dead parts, or enclose injurious particles in their interior, and so render them inert. The leucocytes of the body have been compared to a standing army ready to resist invasion, and inflammation, in which they play such an important part, is but a battle by which they protect the organism against injurious agents, such as microörganisms. The researches of Metschnikoff, Lavdowsky, and others, have so materially widened our conception of the functions of the colorless corpuscles, that we can regard with equanimity their displacement from the duty so long attributed to them of acting as progenitors of the red corpuscles.

After all, the most solid acquisition to our knowledge of the process of regeneration of the corpuscles is the participation in the adult of the bone marrow, and the development of the red corpuscles from its nucleated colorless cells. Here we seem to tread on a firm pavement of carefully observed and well worked-out facts. There are minor details yet in dispute, which the next few years will see settled. Doubt and uncertainty still exist as to how far, in the adult, the spleen shares in the process, and some good observers (Neumann) would deny altogether the post-natal formation of red corpuscles in it, but I think the evidence is sufficient to show that it shares this important function with the marrow.

We shall find, as our information on the subject deepens, that the regeneration of the corpuscles follows the laws governing the regeneration of tissues in general. In the adult body there are permanent and transitory tissue elements, and to the latter the blood corpuscles undoubtedly belong. The nutrition of the former is entirely interstitial, and does not involve any change in the element, when once fully developed. Of transitory elements the epidermic tissues are the best examples. The epithelium is in constant process of regeneration, and the shedding of the superficial cells is analogous to the destruction of the older red corpuscles. The new growth takes place by the constant fission and multiplication of the cells of the deeper part of the *rete mucosum* and if the entire thickness of a portion of the epidermis is removed by accident, the remnant of the cells adherent to the corium repair the loss. Just so, in the life history of the blood corpuscles, which are fleeting structures, like the epithelial cells, the hæmatogenous tissues—spleen, bone marrow, lymph glands—contain as permanent elements cells which, by fission, multiply and pass into the blood current, more or less modified, as the red and white corpuscles.

The recent increase in our knowledge of the changes in the corpuscles in disease, and of the processes of reproduction, is an earnest of fuller information in the near future. A key to the solution of many problems in pathology, will, I doubt not, here be found, but in seeking it let us not forget that the corpuscles float in the blood plasma, the pathological relations of which await investigation, and offer a field for research which should be equally fruitful in advancing our knowledge of the ultimate processes of nutrition and of those deviations from it which lie at the very root of so many chronic diseases.

ORIGINAL ARTICLES.

THE FILARIA SANGUINIS HOMINIS IN THE UNITED STATES—CHYLURIA.

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The objects of this article are: First, to make known the discovery of the filaria sanguinis hominis in the United States; second, to give an abstract of what is known concerning the anatomy, natural history, and pathological relations of this species of filaria; and, third, to present some brief clinical notes on chyluria and filaria as they have come under my observation.

First. In regard to the discovery of the parasite in the Southern States, I have to say that during the last year, 1884, of my residence in Key West, Florida, I became aware of the existence of the filaria sanguinis hominis in that locality. My attention was directed to the subject by my friend, Dr. Charles Finlay, of Havana, who discovered the embryo in the blood of a mutual friend. After this I discovered it in three other cases, and I had all four of them under my care at one time in Key West. But I had no proof that these individuals had become infested with the parasite on that island; on the contrary, it was quite evident that the patients, all Cubans, had contracted the disease in their native country.

I believed then, however, and I have reason now to strengthen my opinion, that, whether primarily imported or indigenous, the filaria was then, and is now, either a permanent resident or a successful colonist on the island of Key West. I had procured a copy of the work of Dr. Manson,[1] and I saw at once that the conditions favorable to the reproduction of the filaria existed in that extreme southern portion of this country. The only positive proof of this, however, would have been to find the parasite in a subject who had never been outside the island. This I failed to do, more, I believe, for want of steady pursuit of the investigation, than because of the absence of native specimens.

Early in 1885, I came to Charleston. I found the subject of chyluria was to be discussed before the State Medical Society. I was told that this disease and elephantiasis were not rare in the city. I also found that mosquitoes were very plentiful during the summer and fall; that cistern water was in general use, and that no filters were to be found for sale in the shops. These observations, together with the fact that Charleston has been for many years in constant intercourse with the West Indies, induced me to be on the lookout for filaria. I also made my suspicions known to some of the practitioners in the city. Since then I have examined a few suspicious

[1] The Filaria Sanguinis Hominis, and Certain New Forms of Parasitic Disease, in India, China, and Warm Countries, by Patrick Manson, M.D., C.M. Amoy, China, 1883.

cases without success, until the 13th instant, when I was kindly asked by Dr. J. J. Edwards to examine with him a patient suffering from chyluria, and suspected by himself and Dr. P. G. de Saussure to be the subject of filaria disease. An examination of the blood removed all doubts. In a drop of it, taken from the finger after night, we found three embryo filariæ in active motion.

I have no doubt that Dr. Edwards will make some observations on this interesting case. Nor do I doubt that he will be able to add other cases from his numerous clientele. The patient, a mulatto woman, is a native of Charleston, and she has never been outside the city, except during five years that she resided in Augusta, Georgia. From the history of the patient we cannot determine positively in which of the two places she contracted the disease. The fact remains, however, that some portion of the subtropical belt of North America is a habitat for the filaria sanguinis hominis, since, within its area the nematode has been able to complete the cycle of its development.

I am inclined to look to Charleston for the source of the disease. In the first place, because river water is used in Augusta for drinking purposes instead of cistern water; and in the second place, because Charleston, besides holding commercial intercourse with the West Indies, has been made more than once a place of refuge for considerable immigrations from some of those misgoverned islands.

The area of distribution of the parasite throughout the Southern States should become a subject of inquiry. New Orleans appears to me to be a promising field for this investigation, unless it be that the wooden tanks, so generally used in that city, bar the access of the mosquito to the drinking water. Dr. Joseph Jones writes me that he has found the filaria of the dog in that city.

Second. The anatomy and natural history of the filaria.

With the exception of some biologists, very few in this country have taken much interest in the subject of filaria. It was little thought that the matter was to become one of practical significance to the physicians of a section of this country. Hence it is that a great deal of confusion prevails. The embryo of the filaria is very generally supposed to be the adult worm; and it is not sufficiently understood that the filariæ constitute a genus which is made up of several species that inhabit divers tissues in a number of animals.

The genus filaria belongs to the order of nematodes in the class of nematelminthes or thread-worms, which is a division of the branch of the animal kingdom called vermes. Of the tissues and organs of divers animals infested by the several species of filaria, should be mentioned the eye, the tissues of the orbit, of the lip, the subcutaneous tissue, the blood-stream, the lymphatic vessels, etc. The subject of this paper is the species called by Lewis filaria sanguinis hominis.

The adult female inhabits one of the lymphatics of man, where she is probably always associated with the male worm, which is smaller in size. The female "is a long, slender, hair-like animal, quite three inches in length but only $\frac{1}{100}$th of an inch in breath, of an opaline appearance, looking, as it lies in the tissues, like a delicate thread of catgut animated and wriggling." The embryo worms of this viviparous animal are thrown out by the mother into the lymphatic circulation, and they are carried with the current through the glands to the blood-stream. Here they circulate freely with the blood. Under normal circumstances the capillaries are not obstructed because the diameter of the embryo does not exceed that of the corpuscular elements of the lymph and blood. As found in these fluids, the nematode embryo, when examined by the microscope,

"is seen to be a long, slender, snake-like, gracefully shaped animal, possessed of an activity so great that until paralyzed by approaching death, or inspissation of the medium it lies in, measurements and observations of structure can hardly be made. It measures about $\frac{1}{90}$ in. by $\frac{1}{3500}$ in., is perfectly transparent, and apparently structurless. The anterior part of the body tapers slightly, and at its very extremity a pouting movement, as if of breathing, is to be detected. Posteriorly the body gradually tapers down to a fine point, the extreme end of which, in most specimens, has the look of being articulated, for this part does not always harmonize with the general curve of the body, but seems bent at an angle" (Manson, page 6).

A drop of blood from the finger suffices for the exploration. I always use a low power, an $\frac{8}{10}$ inch objective, to find the parasite. The details above given, and a few others, can be made out with a $\frac{1}{5}$ inch lens.

If repeated examinations of the blood are made, it will be found that the number of embryos is subject to diurnal changes, which consist in this, that they are absent during the day, and that toward 7 P. M. they begin to make their appearance. I have very generally failed to find any embryos in exminations made before 8.30 P. M. Dr. Stephen Mackenzie[1] has discovered that this periodicity may be reversed by transferring the hours of sleep to the daytime.

The manifestations of filaria disease may all be included under the head of disturbances of the lymphatic circulation. That these disturbances are caused by the filaria is made probable by facts which are presented by Manson (page 20) in the following language:

"If in a country in which the filaria is endemic (as for example, South China) the blood, say of 1000 natives selected indiscriminately, is examined some time between sunset and sunrise, in about 100 the filaria sanguinis hominis will be discovered. If the history of these filaria infested individuals is inquired into, it will be found that a considerable proportion of them enjoy good health; others suffer from frequent attacks of fever, characterized by well-marked stages of rigor, pyrexia, and diaphoresis, resembling in this respect ordinary intermittent fever, but differing in the irregularity and length of the interval—often weeks and months—between the attacks—and also in the greater length of the paroxysms; some in addition to the history of fever, give a story of lymphangitis, and may exhibit varicose glands, which, they say, inflame during the attacks;

[1] A Case of Hematochyluria, Transactions of the Pathological Society of London, 1882.

others have lymph scrotum; some have elephantiasis of the scrotum or leg or both; others lymph scrotum combined with elephantiasis of scrotum or leg; one or two may have chyluria; and possibly there may be a case in which two or more of these conditions may be combined. If the 900 in whose blood no filariæ were found are examined, there very probably will not be one, or, at all events, very many examples of lymph scrotum, varicose groin glands, or chyluria. There is strong presumption, therefore, that these diseases and the filaria are somehow connected."

It will be observed at once that all the above pathological manifestations are evidences of lymphatic obstruction. This will be found to contradict the statement that the embryo is capable of freely traversing the capillaries and the lymph channels of the glands. The theory advanced by Manson to explain this is very plausible, and is almost capable of demonstration. This theory is based upon the fact that the young embryos in the ova state, before being discharged from the mother worm, are coiled up within an enveloping membrane, so that they measure $\frac{1}{300}$ inch by $\frac{1}{150}$ inch. Now, if, for some unknown cause, and at times more or less frequently occurring, these ova are discharged—miscarried—into the lymphatic circulation, we can readily understand how more or less extended areas of this circulation may become obstructed; in fact, the obstruction may be so complete as to prevent the appearance of the embryos in the blood. A fact in support of this theory is that ova, as above described, have been found in the lymph discharged from a lymph scrotum.

It remains now to speak of the manner of growth and development of this parasite. Like other nematodes, the trichina, for example, this one requires an intermediary host to complete its life cycle. In the case of the filaria it is the mosquito that performs this important function. The blood drawn by some species of this insect from a filaria subject is found to contain a large proportion of embryos. These seem to get entangled in the proboscis of the culex. Within the body of the mosquito the embryo develops, and undergoes changes which, upon the death of the host, enable the worm to live an independent existence. The semi-developed form is either discharged by the mosquito with her eggs into the water, or it frees itself by boring through the carcass of the host, which often falls into the water where her eggs were laid. The subsequent steps, though not positively demonstrated, appear to be obvious, namely, the easy access in the water to the human stomach, and the final lodgement in some lymphatic vessel.

The prophylaxis of these diseases is based upon this knowledge. All cisterns should be screened in order to prevent the access of the mosquito, or, what is better still, no rain water should be used for drinking purposes, without having been previously filtered. These precautions are very much neglected in the city of Charleston.

A few remarks concerning the filaria immitis will not, I hope, be found out of place. This name was given to it by Dr. Leidy, who described it from a specimen sent to him from South Carolina, I believe. This parasite infests the dog. I am told by Benjamin McInnes, V. S. Edin., that it is quite common in this city. The adult male and female of this nematode inhabit the venous side of the heart. Dr. McInnes has a specimen, consisting of fifty-two of these worms, which he removed from one heart. They measure from ten to thirteen or fourteen inches in length. The doctor has now a bitch that has been infested for some years. She has just had a litter of pups which were born without filaria, though three out of nine have died unaccountably. A drop of blood taken from this bitch at any time is sure to contain one or more embryo filariæ. This embryo very much resembles that of the filaria sanguinis hominis, but I find that the former appears to be of firmer consistency, and is more vigorous and active in its movements. It ploughs its way, head-foremost always, through thick fields of red corpuscles. To follow one of them it is necessary to keep the stage of the microscope in constant motion. The head is less tapering than that of the human hæmatozoon, a condition which I attribute to the rapid forward movement. The human parasite, on the other hand, appears to get easily entangled with the fibrin and red corpuscles, and though wriggling actively, seems to do so aimlessly, and is seldom able to move out of the field of a $\frac{1}{5}$ inch objective.

Third. Some brief clinical notes on filaria disease and chyluria as they have come under my observation.

The number of filaria infested individuals that have come under my observation is five. Four of them were males, and Cubans residing in Key West. The Charleston patient is a female. They were all between the ages of twenty-five and forty-five years. The duration of the disease is difficult to determine, but it probably averaged over five years. Three of the patients were whites, and two were mulattoes.

Four of these patients were afflicted with chyluria, and the other had a doubtful history of lymph scrotum. The condition which I found common to all, was an intestinal dyspepsia, with frequent attacks of enteralgia, which often preceded and accompanied attacks of diarrhœa. All the patients had lost flesh. They were anæmic, and showed a peculiar ashen hue of the face, and slight irritation of the eyelids.

In all these cases the embryo filariæ were found in the blood, and I had ample opportunity to confront the specimens with the descriptions I found in the works of Davaine, Leuckhart, and Manson, of the embryo as found in India, China, South America, and the West Indies. The two corresponded in all the details, both anatomical and physiological. In none of my cases did I find the embryo in the urine; but I must state that a thorough search was made in only two of the cases.

I also examined, in Key West, the blood as well as the discharges from the affected part, in three cases of elephantiasis of the leg. The results were negative. Nor did any of these patients show other evidences of filaria disease.

Chyluria, then, seems to be the most usual manifestation of the trouble in North America. I have met with two forms of chyluria: the parasitic, and the idiopathic. The parasitic is a manifestation of filaria disease. The idiopathic is, I believe, the expression of a relaxation of the pelvic lymphatics.

This condition is often but a part of that general relaxation of the pelvic tissues which is common amongst women.

So far as the chylous urine itself is concerned, the microscopical appearance and the chemical composition were the same in both cases. In both cases, the milky urine and the coagula were due to the presence of lymph and chyle. The coagula may render micturition a very difficult and painful process. I have seen the urethra enormously distended during the passage of one of these clots. In both cases we had the frequent admixture of blood in the urine, which has given the disease the name of hæmatochyluria. In my Key West cases, the color of the urine, and the number of red corpuscles which were met with sometimes, specially after great exertion, convinced me to the opinion that there must be occasionally an admixture of blood from rupture of small bloodvessels, or capillary oozing. The theory of Manson, that it is simply a regurgitation of lymph from the larger lymph trunks, where this fluid begins to assume the characters of blood, seems to me unsatisfactory.

To these points of resemblance between the two groups of cases, may be added the aggravation of the chyluric symptoms upon exertion and exposure to heat, together with the existence of anæmia, which is apt to be more pronounced, and may be very intense in the parasitic patients.

The points of contrast, on the other hand, were numerous. The idiopathic chyluria was much more common than the parasitic. The average age of the parasitic patients was lower than that of the other group. The female sex greatly predominated amongst the subjects of non-parasitic chyluria. In fact, out of more than twenty patients of this class that have come under my observation, only two were males. The patients were mostly women who had borne children. They presented other evidences of pelvic relaxation, such as hemorrhoids, leucorrhœa, enlargement of the uterus, and tendency to prolapsus, irritable bladder, dragging pains across the loins, etc.

In the filaria patients the dyspeptic symptoms took the place of all this. They were subject to alternations of constipation and diarrhœa. The looseness of the bowels was always referred by the patient to some article of food, or slight indiscretions in diet. Undigested food was generally found in the stools. The pain was referred to the umbilical and hypogastric regions. It generally came on with the diarrhœa, and though not very severe, was gnawing in character, and persisted for hours at a time. The Charleston patient is subject to this pain without any marked tendency to diarrhœa. The persistency of these dyspeptic symptoms has suggested to me the advisability of subjecting the intestinal discharges to careful inquiry. Dr. Edwards and myself will make some researches in this direction.

Treatment.—Under this head, also, we find a marked difference between the two classes of cases. The non-parasitic chyluria was found to be amenable to treatment. As a rule, the relief followed quickly upon the use of suitable treatment. In some cases the relief was permanent; in others there was a tendency to recur at long intervals. The suitable treatment consisted in the administration of tonics; the combination that I found most generally successful was the following:

R.—Strychniæ sulphatis . . gr. j.
Ergotin . . . . . gr. v–xx.
Ferri sulphatis exsic. . . gr. vj.—M.
Ft. pil. No. xxv.
Sig.—After meals.

Great or even complete relief was apt to follow the administration of either copaiba, turpentine, or glycerine. Not more than five minims of the two former should be given at a dose, four times a day. These drugs may be advantageously combined with glycerine. I am convinced that glycerine does not act merely the part of an excipient in turpentine mixtures. It acts, I believe, as a powerful tonic of the pelvic circulation. Subacute and chronic dysenteries, internal piles, and congestions of the uterus, are often greatly benefited by the internal administration of glycerine in drachm and half drachm doses.

Together with this treatment, rest should be enjoined, and cooling drinks, such as lemonade, and orgeat, with ice, should be recommended.

The patient with filaria can hope for no permanent relief, except in the death of the adult worm. This happens occasionally, but cannot be brought about by treatment.

In midsummer it is sometimes impossible to give these patients any relief. The dyspepsia and the chyluria resist all treatment. One of my patients found great relief in the cold bath, but the others were chilled by it. Under ordinary circumstances, however, my patients managed to keep the symptoms under more or less complete control by the use of cooling drinks and the avoidance of exertion. Of the cooling drinks, the iced orgeat seemed to be particularly beneficial. The form of exertion which should be most carefully avoided is rapid walking, especially in the middle of the day. A residence in a cold climate gave complete relief to all the symptoms, for the time being, in one of my cases.

Pepsin and bismuth were given with some advantage for the treatment of the dyspeptic symptoms. Ergot, gallic acid, and glycerine will be found sometimes to act favorably upon the hæmatochyluria. Iron may be given during the winter months. It is very apt to aggravate the dyspepsia in the summer.

Charleston, February, 1886.

P. S.—March 6. My attention has just been called by Dr. Edwards to another case of filaria disease. The subject is a negro suffering with chylocele, and, I believe, there is also commencing elephantiasis of the scrotum. He has no other symptoms. The patient has never been outside of Charleston and its immediate neighborhood. The embryos are found in the blood.

THE TREATMENT OF FRACTURES OF THE LOWER END OF THE RADIUS.[1]

By R. J. HALL, M.D.,
of New York.

At the outdoor department of the Roosevelt Hospital, a not inconsiderable number of fractures of the

[1] Read before the New York Surgical Society, March 23, 1886.

lower end of the radius present themselves, which have already been seen by physicians in private practice, and after the reduction of the deformity and the application of an apparatus, have been referred to us for further treatment, because the patients are impecunious; or which have received the first care at some other hospital or dispensary, and are sent to us because the patients reside in the neighborhood. In this way, and through conversation with various surgeons and physicians in the city, I have had opportunity to note the different modes of treatment adopted by a great number of surgeons, and in a number of the hospitals of the city.

In the claim of a particular apparatus, and the treatment of the fracture, two ideas seem to me to have special weight with New York surgeons. First, that by leaving the wrist and hand free, and allowing it to fall into a position of adduction, we at once reduce the displacement of the hand toward the radial side, and prevent the partial ankylosis of the wrist and rigidity of the tendons and small joints of the hand, so much dreaded in this fracture; and, second, that to avoid this latter condition it is necessary and advisable to commence passive motion at an early period, long before the consolidation of the fracture, and to continue this during the healing process.

A conviction, founded on both theoretical considerations, and on a considerable practical experience, that both these views are incorrect, is my only excuse for bringing so well worn a subject to the notice of the Society.

It will, probably, be a relief to the minds of my hearers to know that I have no new apparatus to present, no new mode of treatment to propose, and that I do not claim to cure all cases without deformity or ankylosis.

My only object is to express my conviction that certain precautions usually considered necessary, are not generally so; and that in the case where the dangers feared are real, the precautions taken are, at best, useless, and often injurious.

In clinging to the conviction that adduction of the hand, maintained either by its own weight, as in the methods of Clein and Bramsby Cooper, or by the pistol-shaped splint of Gayrand or Nélaton, our surgeons are scarcely to be excused, since the fact that this treatment is founded on a false view of the nature of the displacement, and is useless to overcome it, has been fully demonstrated by three, at least, of the authorities most frequently consulted, Malgaigne (*Traite des Fractures*, etc., t. i. p. 616), Hamilton (*A Practical Treatise on Fractures and Dislocations*, p. 300), and Stimson (*A Treatise on Fractures*, p. 460).

For the practice of leaving the wrist and hand free, to allow of active and passive motion, or of removing the apparatus at short intervals during the consolidation, for the same purpose, much more weighty authority can be cited. Indeed, almost all the authorities insist upon the importance of one or other of these measures. As instances, may be cited Malgaigne (op. cit., t. i. p. 617),[1] who allowed the splints to descend only as far as the first row of carpal bones, in order to be able to make moderate movements. V. Pitha (*Handb. der allg. and spec. chir.*, Billroth and Pitha, Bd. 4, Abt. 2, S. 102) advises the same. Hamilton (op. cit., p. 309) seems to advocate complete rest, as a rule, but states that when the fracture extends into the joint, early passive motions must be made to prevent ankylosis. Erichsen (*Science and Art of Surgery*, vol. i. p. 575) says: "After the first week it is well, especially in elderly people, to leave the fingers free, and to encourage movement of them, lest that painful stiffness result which is so common a result of the accident. Passive motion of the wrist-joint may, however, often be commenced with great advantage to the patient before the union of the fracture, more particularly when it is impacted," and predicts very troublesome stiffness if the hand and fingers be kept fixed during the whole time. Packard (Ashhurst's *Internat. Encyclopædia of Surg.*, vol. iv. p. 177) advises that passive motion should be made only in exceptional cases "where there is a strong tendency to stiffening, such as sometimes occurs in old people, or where the violence producing the injury has been very great." Stimson (op. cit., p. 184) recognizes the principle that immobilization is indicated, as a rule, in injuries involved close to joints; but adds, "in the smaller joints of the hand the case is different. There the extended position and immobility favor stiffening, even when the fracture involves only the forearm or arm; and, therefore, should be left free, or dressed in the fixed position and moved every day." And again (p. 146), "the indications are of two kinds: to immobilize the fragments, and to allow passive and voluntary motions of the fingers, in order to prevent or diminish their subsequent stiffness."

Schede (Zur Behand. des typischen Bruches der unteren Radiusepiphyse; *Verhand. der Deutschen Gesell. für Chir.*, 1882, p. 68) recommends that the fingers should be left free and the patients encouraged to make active and passive motions with them; and that the splints should be removed every eight days to allow of passive motion, removing them finally in three weeks. The discussion which followed turned rather on the relative merits of various splints, especially as compared with plaster of Paris, rather than on the question of early motion; but Schüller, Langenbeck, and Billroth stated that they always used plaster as a permanent dressing, leaving the fingers free, and without ever seeing stiffness as a result. Billroth stated that the cases in which there was a tendency to ankylosis and much stiffness were those due to great violence, the fracture penetrating the joint, or with great effusion of blood and inflammatory products.

It will be observed that some of the authorities quoted above advocate early motion only in the more severe cases. If, however, the principle which I advocate is correct, that motion of an injured joint and of the parts surrounding it will only increase the inflammatory process, give us a greater quantity of provisional callus, and cause more effusion into ligaments and sheaths of tendons, with consequent greater subsequent rigidity, it follows that the worse the case the more harm will be done by disturbing the parts, and the stronger indication we have for more perfect and prolonged immobilization. Some,

as Stimson, advocate fixation of the wrist, but leave the fingers free, and consider active and passive motion of these of great importance.

Like almost all surgeons, I leave the fingers free also, but merely because this allows them to fall into a natural and easy position of flexion, and the hand being enclosed in splints and carried in a sling, the patient is under no temptation to attempt much motion.

That fixation in the constrained and unnatural position of complete extension should cause rigidity and discomfort, I can well understand, and have often had opportunity to verify by observation; but if immobilization be advisable in cases of injury to larger joints, or in their neighborhood, I know of no reason why it should be injurious in the case of the smaller.

As matter of fact, I have frequently, in the treatment of fractures of the metacarpal bones with sinking in of the knuckles, kept all the fingers flexed over the end of the padded splint, and completely immobilized for a month continuously, and have never noticed the slightest stiffening as a result.

Verneuil (*Bull. et Mem. de la Société de Chir. de Paris*, t. 5, p. 487) combats with great ability the idea that ankylosis of an inflamed or injured joint is promoted by immobilization; shows that prolonged fixation of a healthy joint has never been known to lead to such a result; that the ankylosis is due to the inflammation of the joint and of the surrounding parts, and that the first requisite for preventing or subduing inflammation here as elsewhere is complete rest of the part.

In giving the mode of treatment adopted by us in these fractures, I would not be understood to advocate the particular kind of splints applied as better than any others in which the same principles of treatment are recognized—they have been used merely because they are cheap, and readily and rapidly applied. Neither have we found one mode of treatment applicable to all cases; where there has been a great tendency to recurrence of the displacement, special means have occasionally been necessary to prevent this. The cases of which I have histories represent really only a small proportion of those treated at the Roosevelt Hospital during this time; they are, however, by no means selected cases. If there has been any selection, it has been of the more severe cases which demanded my personal attention.

In a large number of cases no history was taken, because deformity, crepitus, and mobility were absent, almost the only sign of fracture being the great tenderness on pressure. Were these cases included, it would be open to any one to question a diagnosis made on such grounds. These cases, however, have always given a perfect result as regards freedom from ankylosis and stiffness.

A certain number of other cases have not been recorded, owing to the pressure of work and to the confusion incident to moving from crowded quarters to a new building.

Of seventy-one cases in which histories have been kept, eight are useless, because no statement is made of the condition of the parts at the time of discharge sufficiently definite to be of value. Twenty-eight disappeared before the splints were finally removed. This leaves forty one cases in which the exact result has been carefully noted.

The principles of treatment have been the following: Complete reduction of all deformity when patient is first seen. In only one case was it necessary to give ether to accomplish this.

Application of antero-posterior splints extending from the elbow to the metacarpo phalangeal articulation.

Inspection of the parts at intervals of two or three days during the early part of the treatment, and later at intervals of a week.

In two or three cases only the simple antero-posterior splints have not sufficed to retain the parts in position, when we have applied either Roser's apparatus, a long dorsal splint, with a wedge-shaped pad, keeping the wrist flexed, or strong iron strips, bent so as to give flexion with slight adduction.

The splints have been kept in place for from four to five weeks, no passive motion being made.

When the splints have been removed, the arm has been examined by all the surgeons present, usually at least three or four, often more, and the result noted as perfect only when all were agreed.

The patient has usually been instructed to carry the arm in a sling for a week longer, and not to attempt any laborious work for at least three weeks more. Of these forty-one cases the result as regards absence of any deformity, and either perfectly normal movements of the wrist and fingers, or so little stiffness that the functions were practically normal, has been recorded as perfect in thirty-one.

A similar result as regards motion, but with slight deformity, has been noted in five more cases. In one of these the patient had not presented himself from the time the splints were applied until the day on which they were removed.

In another case it is noted that active motion at the wrist is slight, but passive motion perfect, and very slight deformity. In another case, in which the injury was due to great violence, the impaction of the radius was so firm, and the displacement of the ulna so marked, that etherization was necessary, and even then the deformity was reduced with great difficulty, and not quite perfectly. When the splints were removed, dorsal flexion was fair, palmar only to a slight extent, due, it is noted, to the severity of the original injury and the flexed condition in which it was necessary to keep the wrist to prevent a return of the displacement. Finally, we have three cases in which slight or well-marked silver-fork deformity resulted with, in two, marked displacement of the hands toward the radial side.

In one of these, a man of seventy-two, an active eczema was developed under the splints immediately after their application, so severe that the patient would tolerate no apparatus whatever. No rigidity of the wrist or fingers occurred.

The other two patients were discharged after the usual treatment, the result being noted as very good. Being again under observation some months later, slight silver-fork deformity was noted with well-marked displacement of the hand toward the radial side. In one of these there was reason to believe

that the deformity was due to disregard of our instructions, as to undertaking hard work immediately after removal of the splints. I had a similar experience some years ago when, after discharging an elderly woman at the end of four weeks with a very good result, in defiance of my instructions she at once commenced hard work at a scrubbing board, and presented herself some three months later with one of the worst deformities that I have ever seen. I would call attention to this as being one of the ways in which blame may be unjustly attached to the surgeon.

In the third case, besides deformity, there was decided weakness of the flexor muscles of the hand, apparently due to an effusion into the sheaths of the tendons. I am at a loss to account for the late appearance of the deformity, as the patient really seemed to have done no work since his discharge. He was receiving a weekly allowance from a society, and the continued weakness may have been due to long-continued voluntary disuse of the muscles.

I am far from maintaining that good results may not be attained in particular cases by the methods which I condemn, but holding, as I do, that the principle of early passive motion for injuries near to or involving joints is wrong, I must regard them as having been attained in spite of, and not in consequence of, the treatment.

As incidental points of interest in these cases, I may mention that in three the fracture was distinctly stated to have been produced by forced palmar flexion. In two of these the deformity had been partially reduced before the patients were seen, so that I am unable to give the direction of the original displacement. The third, a very intelligent man, who gave a clear and positive account of how the accident occurred, presented the silver fork deformity of a typical Colles. One case presenting the regular deformity was alleged to be due to direct violence, a heavy board having fallen on the wrist.

Another, a man, presented himself with an unimpacted fracture of the lower end of the radius and no deformity. On touching the parts a violent spasm of the extensors of the thumb and of the radial extensors of the wrist threw the parts into a perfect silver-fork position, the spasm causing severe pain and lasting several seconds. This could be made to recur a number of times and be carefully observed.

One case presented an oblique fracture running from above and internally downward and outward into the joint, so as to chip off a triangular fragment from the internal portion of the lower end of the radius; the fragment, of course, did not include the styloid process.

MEDICAL PROGRESS.

Experiments with the Decoction of Lemon and other Kinds of Citrus.—Dr. E. Bonavia records the following results from the use of infusions of lemon and allied fruits:

1. For simple intermittent fever, without any other complications, the decoction of lemon and of the "Khatta" orange is as good a febrifuge as quinine, and acts with rapidity, even in tertian and quartian fever.

2. In cases of weakness and loss of appetite after fever, the effect is even more quickly developed. It shows itself after the second dose, improving the appetite and digestion, and diffusing vigor through the nervous and muscular systems. I tried three kinds of sour citrus in such cases, and they appear equally good.

3. In cases of *recently* enlarged spleens, even when of three or four months' standing, these decoctions (excepting the fluoride of ammonium, which is equally good) are the *best splenifuge* I am acquainted with.

4. When the spleen is *very* large, and of *years'* standing, it takes a prolonged treatment to reduce and soften it. In such cases, probably neither the decoction of citrus, nor any other remedy known, will make it entirely disappear—that is, reduce it to its normal size. To test the value of these decoctions in very large and old spleens, such as we often see in natives of India, it would require that the patient should voluntarily submit to the treatment for some years.

It would appear that we have in the genus citrus a remedial agent for intermittent fevers and their consequences, of much potency. If chemists could be induced to take up the subject and endeavor to extract the medicinal principle in some cheap form, a new departure in febrifuges and splenifuges might be brought about. The raw material can be grown everywhere, and at the present time, owing to competition and low prices, it is said that the fruit is allowed to rot on the trees in Sicily, because it does not pay the growers to pack and ship it to other countries. Here is a grand opportunity for utilizing such wealth of raw material, and work it into some cheap form of portable and durable febrifuge. Probably, it would not only utilize the superabundant fruit of the world, but would give a new start to manufacturing chemists, and a new market for oranges and lemons. It would be interesting to find out whether this medicinal agent exists ready-made in the fruit, or is brought out by the action of the boiling citric acid on the essential oil and bitter principle of the rind; whether it exists only in some citrus, or in all the fruit of the genus; whether it also exists in the leaves, bark, and wood of the trees, and so forth. It appears a remedy of so much value that Dr. Bonavia hopes someone may be induced to take up the subject, and work it out.—*The Provincial Medical Journal*, March 1, 1886.

Diagnostic Value of the Lacteal Secretion.—At the last meeting of the Cologne Medical Society, Dr. Otto Schmidt stated that he had examined the breasts of one hundred and fifty non-pregnant women, who had not borne a child for at least two years with the following results. In nine (*i. e.*, six per cent. of these cases), milk could be expressed from the mammary glands.

Of these persons, three suffered from endometritis and uterine hyperplasia, three with retroversion or retroflexion with phenomena of stasis, two with ovarian cysts, and one with bilateral pyosalpinx. While no constant causal relation can be established between abnormal genital disturbances and the lacteal secretion, it is evident that the presence of the latter must not be

accepted as an absolutely reliable sign of pregnancy.—*Deutsche med. Wochenschrift*, March 4, 1886.

Normal and Pathological Hæmatimetry in Warm Countries.—The valuable work of this title by Mauvel (Paris, Octave Doin), has very recently obtained the French prize in naval medicine, and represents a most laborious series of observations. The principal points of practical interest may be thus summarized:

1. During the first months of sojourn in tropical countries, no sensible diminution occurs in the red corpuscles; this, however, becomes noticeable after about five years and is due more to dietetic than to thermal conditions.

2. Marked differences in the corpuscular unit, as influenced by sex, are observed. In Hindoos, Africans, and Chinese, the red corpuscles were fewer in women than in men, while the white were more abundant; this is ascribed to menstrual loss, and to the consequent labor of repair, the red corpuscles were relatively fewer in the female negro and hindoo than European women.

3. Mauvel notes in bilious fever an augmentation of both corpuscular elements. In inflammatory fevers there is noted a preliminary arrest of the production of white corpuscles, with great increase of these elements at the period of convalescence. In yellow fever, on the contrary, the loss of both red and white corpuscles is considerable from the start.

Malthus's Law and Tumor-growth.—Dr. Jonathan Hutchinson writes, as follows, to *The British Medical Journal* of March 20, 1886:

Malthus's law of population-increase by geometrical progression applies to the growth of tumors. The larger they have become, the more rapid is their rate of progress. It is a process of cell-multiplication; and the more numerous the cells, the greater the result of their doubling. It is important to remember this law, since it may help us: first, in prognosis; secondly, in emphasizing the importance of early treatment; and, thirdly, as showing the occasional advantage of methods of treatment which diminish bulk and retard growth, although there may be no hope of cure.

The Malthusian law is often remarkably illustrated in cases of rodent ulcer, which advance very slowly at first, and very rapidly later on.

Thallin.—Jansen has experimented with thallin sulphate and emphasizes its antiseptic powers. One-half of one per cent. of this salt in the urine preserved it from decomposition for over a week, and the urine of persons receiving thallin remained six days without any sign of decomposition.

Jansen records the use of thallin sulphate in five to eight grain doses in ileotyphus, with a marked fall of temperature, and sweating without disagreeable after-effects. The greatest decrease was observed three hours after the exhibition of the drug, and two and one-half hours thereafter the temperature attained its original height.

In acute tuberculosis and in phthisis pulmonum a fall of 1° C. was induced by two grain doses. In seventeen cases of malaria, one-third to one-half grain of thallin was given, from two to three hours before the attack, divided into two doses an hour apart. In twelve of these cases the expected attack was aborted, but in only one case did the twice repeated exhibition of one-half of a grain of thallin give permanent relief. In all the others it was requisite to resort to quinine. Owing to the absence of unpleasant after-effects Jansen prefers thallin to kairin and antipyrin.—*Centralb. f. klin. Med.*, March 6, 1886.

Inhalations in Pulmonary Tuberculosis.—Renzi presents the following results of numerous observations upon the treatment of pulmonary tuberculosis by medicated vapors:

1. Inhalations of minute quantities of the vapor of iodine, and of a mixture of iodoform in turpentine, induce amelioration of the local condition and of nutrition, but do not modify the fever, diarrhœa, or night-sweats. The mixture last named consists of twenty-five parts of turpentine to one of iodoform. Two to six drops of this are to be hourly volatilized in an apartment of average size.

2. Inhalations of sulphuretted hydrogen (four cubic inches of the gas to each cubic yard in the room) and of suphurous acid augment the general and dynamometric strength of the patient, and have a beneficial effect upon nutrition and renal excretion. The sulphuretted hydrogen possesses an especial action upon the respiration, which, together with cough, is diminished in frequency—*Rev. de Thérapeutique*, March 1, 1886.

Chronic Rheumatic Arthritis of the Hip-joint.—In a paper thus entitled, read on March 4, before the Harveian Society of London, Mr. W. Adams contrasted as follows the symptoms of rheumatic arthritis and those of Charcot's disease:

Rheumatic Arthritis.	*Charcot's Disease.*
1. Changes chiefly hypertrophic.	1. Changes chiefly atrophic.
2. Commences in the soft tissue.	2. Commences in the bones.
3. Painful throughout its course.	3. Generally painless.
4. Pain confined to the joint.	4. Pains shoot through the limbs.
5. No febrile disturbance. No gastric or ocular symptoms.	5. All these are present.
6. Reflex symptoms present.	6. Reflex symptoms absent.
7. Limited mobility.	7. Flail-like mobility.
8. Progress slow and chronic.	8. Progress rapid and acute.
9. Patients often reach old age.	9. Patients seldom reach old age.

—*British Med. Journal*, March 13, 1886.

Variations of Weight in Disease.—Astegiano has recorded the variations of weight in the cases of 312 individuals suffering from febrile disorders.

In 119 cases of ephemeral fever, the loss of weight was proportionate to the duration of the fever rather than to its intensity, and was greater in muscular individuals than in the obese.

The same rule obtained in catarrhal angina (88 cases), and in pneumonia, pleurisy, and typhus. In this group the loss in certain cases amounted to thirty pounds.

In malarial fevers the loss was usually from nine to ten pounds after several attacks. In fevers due to local suppuration the loss was still greater. Syphilis induces at its inception an appreciable loss of weight, but the nutritive equilibrium is soon reëstablished.—*L'Union Médicale*, March 6, 1886.

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SATURDAY, APRIL 10, 1886.

REMOVAL OF THE PLACENTA IN LABOR AND IN ABORTION.

THE most eminent of living French obstetricians, PROF. PAJOT, has presented, in the February number of the *Archives de Tocologie*, his views of the conduct of the obstetrician as to delivery of the placenta in labor and in abortion; and they are interesting in connection with those of Felsenreich, recently presented in these columns, and from which they differ somewhat.

Pajot very decidedly rejects expectation if the placenta be retained in labor, and strongly enforces this rejection by statistics taken from his personal observations as well as from other sources. Thus, in sixty-eight cases in which the placenta was retained, and which were left to nature, a fatal result occurred in sixty; and, on the other hand, out of one hundred and two in similar condition, where artificial delivery of the placenta was resorted to, only four died, though some of them were in extreme exhaustion from hemorrhage when the operation was done.

The question as to how soon after the birth of the child the placenta should be removed, is one to which no definite answer can be given; the condition of the uterus rather than the lapse of a certain period of time must determine the intervention of the obstetrician.

In speaking of the method of placental detachment, Pajot teaches that the circumference of the placenta is separated first. Now we doubt this, and incline to the opinion that the centre is first detached, especially for the reason mentioned in our criticism of Felsenreich's views, to wit, that it is at the circumference the attachment is firmest, and, therefore, it will be least likely to yield first. So, too, we think that the separation of the placenta normally occurs, not after, but during the actual expulsion of the child, although Pajot seems to attribute this separation to uterine contractions occurring after this expulsion; but if a finger be passed up to the os uteri immediately after the birth of the child, the placenta can usually be readily felt lying in the lower uterine segment.

If the uterus be firmly contracted after labor, the placenta usually is detached, a fact which the obstetrician should ascertain, according to Pajot, by seizing gently the cord with the left hand, while the index-finger of the right hand is passed into the vagina until it meets the placenta; if any part of the placenta has entered the cervical orifice, it is detached. Nature is quite competent to expel the placenta under these circumstances, but the expulsion may not occur for twenty-four hours, and after more or less severe suffering, and possibly serious hemorrhage. Therefore, the advice is given to wrap the cord two or three times round the finger until the hand is in contact with the vulva, and then exercise gentle traction; then he exerts continuous tension of the cord, never relaxing the pulling, even if an hour be required, though he has never met with a case where this continued tension was necessary more than twenty five minutes. Of course, it is only when the obstetrician is certain that the placenta is detached, that this practice is to be pursued, otherwise the uterus may be inverted or the cord broken.

In the treatment of a case where the placenta is not detached, Pajot gives the following advice: "In the hours immediately following delivery you should make all the efforts you can to extract the placenta. Introduce your fingers gently following the cord, then proceed to detach all of the placenta you can, placing the pieces in proper form after their extraction so that you may know whether the removal is complete. If all has not been removed, inject the liquor of Van Swieten into the uterus, repeating the injections while any fragments of the placenta remain."

We are not prepared to accept the practice Pajot advises of traction upon the cord for delivery of the placenta, but very much prefer that the uterus should expel the placenta, assisting the uterine action by gentle pressure, or frictions, or by positive compression; after the placenta is in the vagina, then traction upon the cord may be used to complete the removal.

So, too, we would hesitate to pass the hand into the uterus for the purpose of separating an adherent placenta; as cannon are said to be the *ultima ratio regum*, so this practice should only be resorted to after the failure of external means to secure this detachment, or in case of hemorrhage. We have now seen within two years five cases of septicæmia, two of which proved fatal, following the introduction of the

hand into the uterus for the removal of the placenta. This removal, if the placenta really be adherent—a condition which very rarely occurs—will necessarily be incomplete, as Sirèdey says, and fragments of the membranes, which remain with clots in the uterine cavity, are liable to undergo rapid change, thus favoring the development of germs. Sirèdey states that he does not hesitate to proscribe this practice, as being often inefficacious and dangerous. He, also, holds that if complete delivery is possible, it ought to be made, but if the placenta remains adherent and resistant, he thinks, contrary to the classic opinion, that it would be much better to give ergot in large and frequent doses, in order to determine as promptly as possible energetic uterine contractions which will stop hemorrhage and cause the disappearance of immediate danger. There is thus presented the very striking difference in practice between two eminent French authorities.

In retention of the placenta in abortion Pajot states that one of two conditions is present, the placenta is detached, or it still adheres to the uterus. In the first case absolute expectation is advised as long as there is no odor, but when that is observed removal of the placenta is urged. So, too, expectation is advised when the placenta is adherent, but it is recommended to have tampons prepared for immediate use should hemorrhage occur. Ergot, he says, is never to be given as long as the placenta is in the uterus, under the penalty of committing assassination—of killing the woman. The last opinion seems to us, like some other of Pajot's utterances, too dogmatic and absolute, though certainly his conservatism, or rather expectation, in the treatment of incomplete abortion has some good ground.

REMOVAL OF DEEP-SEATED TUMORS OF THE NECK.

A recent communication to the *Lancet* of Jan. 30, 1886, by Mr. Arthur C. Barker, calls attention to the comparative impunity with which deep-seated tumors of the neck may be removed, now that the principles of asepticism are so well understood. In it, he reports four cases in which he removed tumors lying beneath the sterno-cleido-mastoid muscle, requiring deep dissection.

In one case, the descendens noni nerve had to be dissected from the tumor, a portion of the internal jugular vein was excised after the application of a double ligature, and the middle part of the scalenus anticus muscle had to be cut out. Some glands in the posterior triangle of the neck were also removed by incision just above the clavicle. The wounds were dried, and dusted with iodoform, and a drainage tube was inserted. The skin was united with silk sutures. Pads of "salicylic wool" were applied, and covered with other wool in such quantity that considerable pressure could be made upon the cavity by means of bandages. What happened to the phrenic nerve, the operator cannot say; although he noted that while dissecting from the tumor a large nerve trunk, the respiration became sobbing, and that it became normal again as soon as this dissection was ended. No symptoms referable to the excision of a piece of the internal jugular vein, or to disturbance of the nerves, were observed after the operation, although they were carefully looked for.

In another case, the subclavian vein was exposed for a considerable distance. All the operations were of a very severe character; but the patients recovered promptly and without accident. After most of his operations of this kind, Mr. Barker has observed a transient rise of temperature in the first twenty-four hours; but as it has been unaccompanied by any other sign of septic absorption, it has not led him to change the dressing.

In regard to the *technique* of Mr. Barker's operation, it is to be noted that he departs from the method of Lister, in omitting the use of the spray and in substituting salicylated wool for carbolized gauze. In studying the cases, it would appear that his admirable results must be due, in part, to a point of which the operator could not well speak, namely, his dexterity. In no operations is this element of surgical skill so essential to the highest degree of success, as in those involving the deep parts of the neck. Another important feature is the application of the principle of dry and infrequent dressings, so ably advocated, and so successfully employed by Mr. Sampson Gamgee. It is certainly interesting to observe the widening of the field of operative surgery in such perilous ground as that of the neighborhood of the great vessels of the neck; and it is encouraging to know that many other surgeons now expect recovery without accident or drawback after operations which, only a few years ago, were approached with the greatest anxiety.

REMARKABLE RESULTS OF THE NEW GERMAN CÆSAREAN OPERATIONS.

Three distinct methods of performing or completing the Cæsarean section have been devised and tested in Germany during the last five years; two of them by their respective originators, and the third likewise, and also by several operators, who have been influenced by its designer to adopt his method. The cases in which this operation has been performed, amounting to seventeen in number, have had a far less fatality than has followed in the same country, either the old Cæsarean section, or its modification by utero-ovarian amputation.

The processes which bear the names, respectively, of Frank, Kehrer, and Sänger, have been fully described in *The American Journal of the Medical Sciences* for July, 1884, page 232. Frank has ope-

rated twice, viz , on August 9, 1881, and December 8, 1884, losing the first patient, who died of shock in ten hours, and saving the second. Kehrer has had four cases, viz., on September 25, 1881 ; November 13, 1881 ; April 11, 1882 ; and June 20, 1885. The first and fourth recovered ; the second died of septic peritonitis in fifty three hours, and the third of septicæmia in five days. The Sänger operation has been performed in Germany alone eleven times, five times by Leopold, of Dresden, the first on May 25, 1882, with the loss of one case, his fourth, operated upon November 28, 1884, which died in five days, of septic peritonitis. Sänger has operated four times in Leipzig, the first on November 16, 1884, and the other three last year. These patients all recovered. A tenth Sänger operation was that of Beumer, which was unfortunately fatal in forty hours, the woman being found upon autopsy to have had a pyelonephritis ; this operation was in Griefswald. The eleventh case was under the care of Oberg, of Hamburg, and was operated upon on July 17, 1884 ; the patient recovered.

We have, then, seventeen of the new German Cæsarean operations to be placed to the credit of Germany, with the saving of thirteen women, or $76\frac{6}{17}$ per cent. By the Sänger operation alone, we have the remarkable result of $81\frac{9}{11}$ per cent. of women saved, and 100 per cent. of the children, which is considerably more than double the saving effected by the Porro method in Germany. To find an equivalent of nine women saved by the Cæsarean section in the United States, we must go back over a period of eleven years, and examine the records of thirty-nine operations, by which thirty women and twenty children were lost. This frightful mortality of $76\frac{12}{13}$ per cent. of women is far greater than was encountered thirty years ago in our country, and is largely due to the fact that the Cæsarean operation is believed to be almost inevitably mortal, and hence is not resorted to until the patient is in an almost hopeless state. We have made the operation by delay as fatal as our English text-books teach us it is in Great Britain ; and have done this, too, notwithstanding the fact that early operations have saved 75 per cent. of our women.

FUNGOUS AND POLYPOID ENDOMETRITIS.

At a recent meeting of the Dresden Obstetric and Gynecological Society, the proceedings of which are reported in the *Centralblatt für Gynäkologie*, for March 6th, the subject of fungoid and polypoid endometritis was discussed. Grenser reported thirty cases which have been treated by him. He used carbolized sponge tents, even three or four, one after another, being employed, and had in only one of the thirty patients any unpleasant results ; this patient had parametritis. After the dilatation, the uterus was washed out by astringent injections, and in cases of fungous endometritis ergot was given internally, but in the polypoid form the curette was used.

Schramm preferred Hegar's dilators to compressed sponge, and cauterization with liquor ferri to the use of tincture of iodine ; he found that fungous endometritis occurred most frequently in women between forty and fifty years of age. Leopold sometimes used laminaria, sometimes Hegar's dilators, or both, but most frequently found dilatation unnecessary ; he introduced into the uterus small pieces of cotton which had been first dipped into a solution of liquor ferri. Eight days rest in bed was insisted upon after the operation. It may happen that the first, and even the second period following will be profuse.

If injections are used, certainly dilatation should be first made, for unless there be a free exit for the fluid from the uterus, apart from any danger of its entrance into either oviduct, violent uterine colic may occur. Further, even in fungous endometritis we would hardly depend upon local applications alone, but would always precede them by the use of the curette or the curette forceps. We think it very doubtful whether the administration of ergot after the operation, as advised by Grenser, has any influence in the cure.

AN AMERICAN ADDRESS BEFORE THE BRITISH MEDICAL ASSOCIATION.

In compliance with the request of the President of the British Medical Association, Dr. John S. Billings, U. S. A., has accepted an invitation to deliver the Address in Medicine at the ensuing Brighton meeting, which was to have been delivered by the late Dr. Austin Flint.

Dr. Billings is well known in England, and the gratifying impression made by his able Address delivered by invitation before the International Medical Congress at London in 1881, and the warm encomiums which it elicited, are evidently still remembered. Three years later, the University of Edinburgh honored him by selecting him as one of the three representatives of American Medicine, upon whom to confer its degree of Doctor of Laws, on the occasion of the tercentenary anniversary of its foundation. His acceptance of the invitation to deliver the Address in Medicine before the British Medical Association will give general satisfaction abroad, and it will be a source of especial gratification to the profession of our own country that American Medicine is to be so worthily represented at Brighton.

This is, we believe, the first time within the history of the Association, that one of its Addresses has been delivered by a foreigner, and it affords another proof of the growing tendency of science to work for its own advancement regardless of geographical boundaries.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, March 4, 1886.

THE PRESIDENT, B. F. BAER, M.D., IN THE CHAIR.

MENSTRUAL EPILEPSY.

DR. HOWARD A. KELLY exhibited recent specimens of tubal and ovarian disease. The first specimens were removed from a patient twenty-one years of age, who had suffered from an aggravated menstrual epilepsy from the first appearance of the function. There was no difficulty whatever in the removal through a small incision into which two fingers could just be slipped. The whole operation, from beginning to complete closure, took but twenty-four minutes. The right ovary was deformed by a very prominent nodule, about one and a half centimetres in diameter, which burst on removal, discharging a watery fluid, and was shown by its lining membrane to be the last corpus luteum.

The second specimens were rare examples of

HYDROSALPINX, WITH CONGENITAL DEFICIENCY OF TUBES AND BROAD LIGAMENTS.

In this case there was malformation of the distal ends of the tubes, broad ligaments, and ovaries. The left tube is as large as a bologna sausage. It was brought into view with great difficulty after separating many slight adhesions to the pelvic walls; while the isthmus is much enlarged and thickened, the great distention is at the involuted ampulla. The operator was materially assisted in bringing this tube into view by upward pressure on the cervix by a hand in the vagina. The fimbriated extremities were lost in a mass of vascular and fibrous tissue forming a broad ligament, and deep down in this were embedded the somewhat hard, elongated, large ovaries. It was utterly out of the question to attempt a removal of the ovaries, and any such operation would have been of a very desperate character; nor did he regret this in the least, as he had planned his operation for *tubal* disease, to which he attributed all the patient's sufferings. The right tube was as large as his middle finger, and was also distended with watery fluid.

The third specimen was a very large

HÆMATOSALPINX.

This tube (the left), about four inches long, burst as he was removing it, discharging four ounces of tarry blood. It was very adherent, having several attachments to intestine and omentum. The dilatation is here, too, seen to be at the ampulla, which extended far beyond the ovary back into the cul-de-sac. The ovary is embraced by the isthmus, and presents a curious appearance as it lies, about twice the normal size, embedded, in a sort of ball-and-socket manner, below the isthmus. Where it is laid open, the tube is converted into one large sac.

DR. JOSEPH PRICE remarked that the tube was so large that the uterus had been pushed aside by it. Great care was required in its removal.

DR. CHARLES HERMON THOMAS said that some time since he would not have recognized such a condition, but now he can, the result of experience in bimanual examination.

DR. B. F. BAER thought it very unfortunate that the ovaries as well as the tubes could not have been removed, for their presence will probably result in the usual monthly congestion, and the pain and other pelvic distress, for the relief of which the operation was performed, may continue to exist. He can see no reason why this should not be done, unless the ovaries cannot be found, or some other insurmountable difficulty presents itself. He fully believes in the advantages of prolonged and thorough palliative treatment in these cases. Benefit usually follows, and sometimes cure; at least, operation is rendered less difficult and more likely to be followed by recovery of the patient both from the operation itself and the symptoms. Certainly the application of remedies such as iodine to the fundus of the vagina and the interior of the uterus, with prolonged rest and general building-up of the system, will have a strong influence in attenuating adhesions, promoting absorption of lymph, and possibly, if not probably, in cure of the patient without operation.

It should not be forgotten that removal of the tubes and ovaries in these cases does not cure absolutely in every case. He believes that we will be called upon in a few years by many of these cases which have been operated upon to relieve symptoms which still exist or have returned, and for the relief of which operation had been performed; just as we have been called upon from time to time and pestered by those old cases of chronic hypertrophy and retroflexion of the uterus with pelvic adhesions. He has now under his care one of his own cases upon which he operated for the relief of symptoms, the result of disease of the tubes and ovaries with pelvic adhesions. The patient made a good recovery and appeared to have been cured, but the symptoms have returned, and she is now complaining almost as much as before the operation. She also has periodical attacks of metrorrhagia. This, of course, is an unusual case. He has another patient under his care who was operated upon in a neighboring city by removal of the tubes and ovaries, and is treating her for the same symptoms of which she had complained before the operation. He is an advocate of the operation in some cases, but he pleaded for due deliberation and the exhaustion of careful palliative and preparatory measures before operation is resorted to. Many cases will get well without operation. Some will not be benefited by the operation, and there is some danger in laparotomy, although Tait has had such remarkable success.

DR. JOSEPH PRICE said that the recurrence of symptoms seemed to indicate partial removal of the tubes and ovaries. One of the fundamental rules of surgery is to seek for pus when it is probably present and, in all cases, to remove it if possible. When the ligatures will cut through the tubal stump on account of its cheesy character hemorrhage may be prevented by the application of the cautery.

DR. KELLY, in closing the discussion, said he did not in the least regret that the ovaries could not be removed, as he had operated for tubal disease, not for ovarian; and he admired the zeal of Schröder who instead of always removing the ovary, sometimes resected diseased portions. In all the cases of tubal and ovarian disease upon which he had operated, months

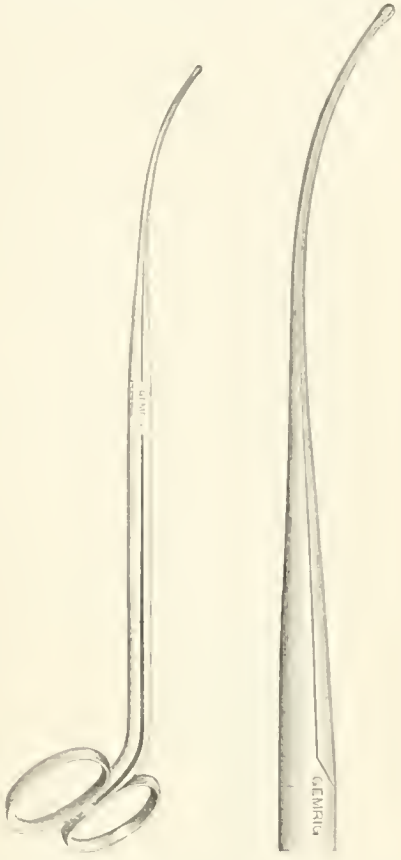
and years of careful treatment had been wasted, and now where he diagnosticated pyosalpinx the only delay he allowed was to put the patient in the best possible condition for operation. Topical, external, and internal treatment is utterly futile and never does more than secure temporary palliation. His reliance in diagnosis lay in a careful bimanual examination, by which he always accurately mapped out all the peculiarities of the case before operation. If there be rigidity and resistance, it is necessary to etherize, but he has yet to see the case where the presumptive signs were those of tubal and lesser ovarian disease, where the structures could not be picked up between the two hands and outlined. He considers that this tact has been largely developed by persistently examining the condition of the appendages to the utmost possible extent as a routine practice in all cases which have come under his notice. Introducing the finger as high as possible, by forcing the hand well under the pubic arch, and carrying the sensitive pulp up against the post-fornix or either lateral fornix, and then playing up and down with the other hand pressing on the abdomen and creeping a quarter inch at a time without ever fully releasing, and letting structures in between roll through the two fingers and in case of an ovary, running around its whole periphery, or of a tube, tracing it up to the cornu uteri and down into the retrouterine pouch where it generally terminates, give often most surprising results and would doubtless, if universally carried out, change hundreds of diagnoses of leucorrhœa, endometritis, and flexions with adhesions, to the far more serious ones of pyo- or hæmato-salpinx.

PYOSALPINX.

Dr. Joseph Price exhibited specimens of pyosalpinx from two patients, and afterward remarked that Tait and Keith have ended the dark period by showing us how to operate on the abdomen and pelvis without fear and with little risk. The wonderful advance in pelvic and abdominal surgery should be placed to their credit. He believes it is now universally admitted that they have reached the very acme of perfection. One surely must be a convert to Tait's law to contend with the great difficulties in pelvic surgery: "That in every case of disease in the abdomen or pelvis, in which the health is destroyed or life threatened, and in which the condition is not evidently due to malignant disease, an exploration of the cavity should be made." Standard works on ovariotomy dwell at great length on the subject of adhesions as the most important and difficult complication with which the operator has to contend. In short, in pelvic operations the risk and the difficulty will ever lie in the separation of organized inflammatory products. Adhesions, when old, between the pelvic viscera and diseased tubes become degenerate and hence easily ruptured. In one case only did strong adhesions, deep in the pelvis, stay his hand. The right tube and ovary adhered strongly to the sac and right side of the uterus and the whole adherent mass was absolutely inseparable. Again, the rupture of pus tubes or cysts filled with inflammatory, septic, or malignant elements, will be followed by serious symptoms. Operation becomes difficult when the ovaries and tubes, tightly distended with pus, and softened with pathological changes, cheesy in consistence, are matted together with the rectum and small intestines.

UTERINE APPLICATOR AND DRESSING FORCEPS COMBINED.

Dr. Charles Hermon Thomas exhibited this instrument, which is specially adapted to make applications within the cavities of the neck and body of the uterus, but which is also available for making dressings and applications to the vagina and external surface of the cervix; it has borne the test of two years' use. It is in



forceps form, the blades are strong and resistant from the handles forward about two-thirds of their length, when they narrow rapidly, so that taken together they become about equal in size to the ordinary uterine sound. This narrow portion, somewhat suggestive of the long beak of the angular ear forceps, is about three and a half inches in length, the tips being roughened on their opposed surfaces. It holds securely the smalles pledget of cotton, and by reason of the springy character of the beak will permit the locking of the handles when a full-sized pledget or tampon is placed within its grasp. The point is slightly probed as an extra precaution when introduced to the uterine fundus, though a small cotton ball answers all needful purposes as a protective tip. Dr. Thomas stated that he usually employed the plain point on account of its occupying less space at the internal os uteri. The beak is curved to a shape corresponding very closely to that of Ellinger's dilator and which has been found so generally well adapted to entering the uterus. This portion is electroplated with gold, when so ordered (a proceeding of moderate cost and to be commended), as a protective against the corrosive action of iodine, iodized phenol,

and the like, which so rapidly destroy nickel-plating and corrode polished steel surfaces. The instrument was made under his directions by J. H. Gemrig & Son, of this city.

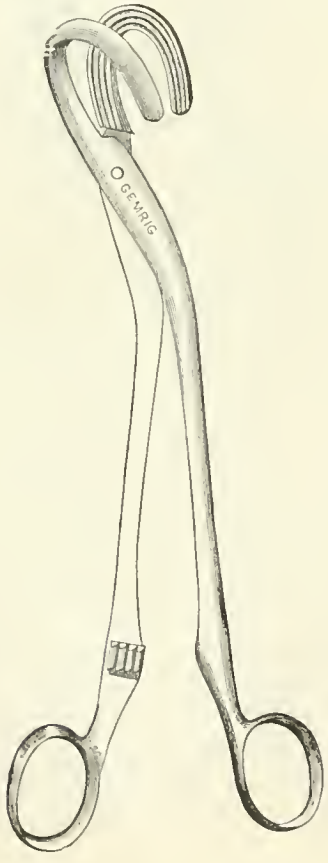
Some practical points of use may be mentioned. Soiled or medicated cotton is easily removed with the use of one hand only, by simply unlocking the handles and wiping the point in a crumpled paper, thus leaving the other hand free for other employment, and avoiding the trouble, the soiling of the fingers, and the whittling often involved when the wire applicator is used. In its use there is immunity from the rasp action of the closely wrapped cotton of the wire applicator, and also a greatly increased carrying capacity of the cotton for medicated liquids. Moreover, it will be found convenient and desirable to make use of the instrument as a uterine sound incidentally in certain instances. In his own experience it has proved practicable as an applicator, one fully meeting the needs of most cases; while as a uterine dressing forceps for general use it has been found so satisfactory as to have superseded all other instruments of this class.

DR. BAER said that the instrument presented by Dr. Thomas is a very ingenious one, and will doubtless serve a good purpose where the cervical canal is patulous; a greater quantity of the medicating agent used can be carried to the diseased surface than when the tightly wrapped cotton is used.

DR. JOSEPH PRICE exhibited the accompanying

FORCEPS

for the complete closure of the trocar puncture in ovariotomy.



NEW YORK SURGICAL SOCIETY.

Stated Meeting, March 22, 1886.

L. A. STIMSON, M.D., VICE-PRESIDENT, IN THE CHAIR.

DR. R. J. HALL read a paper on

THE TREATMENT OF FRACTURE OF THE LOWER END OF THE RADIUS.

(See page 402.)

DR. H. B. SANDS said he did not suppose that the members of the Society would come to any agreement on the chief point raised by Dr. Hall, because their experience doubtless had differed, whereas the results had generally been good. His own attention was called to the point of the avoidance of passive motion by reading Verneuil's very able discussion of the subject in 1879. He confessed that he had often been disappointed in attempting to secure the results said to have been obtained by passive motion. His practice had been very much like that advocated by Dr. Hall, and he was prepared to endorse the views that had been advanced. He believed that mistakes were frequently made by resorting to passive motion early in all cases of fracture in the neighborhood of joints. In the case of one joint he thought all surgeons would agree that passive motion should not be resorted to, and that is fracture in the neighborhood of the hip-joint. The usual plan of treatment was to adjust a posterior splint and allow the limb to remain in a fixed position for at least six weeks; at the end of that time Dr. Sands thought there was not, as a rule, any stiffness to be observed at the coxo-femoral articulation. He had been frequently disappointed in attempting by means of passive motion to restore or preserve the mobility of the wrist-joint. He believed that in some cases immobility is inevitable. He had treated the fracture under consideration in both ways; that is, by complete immobilization, and by resorting to early passive motion, and by each method had occasionally been disappointed in the results when the accident occurred in old persons. But when the comparison came to be made between the results obtained by the two methods, he had no hesitation in saying that passive motion had been resorted to much too often and much too early. He had frequently noticed in fracture in the neighborhood of the elbow-joint occurring in children, that the joint, after the fracture had united, was very stiff and the tissues about it more or less thickened, and the conditions such that all efforts on the part of the surgeon to restore complete mobility by passive motion were futile; but he had seen some of these patients at a subsequent period, and had been both surprised and pleased at the result, for the inflammatory products had disappeared, and the arm, being left to perform its natural movements, had become quite supple. At the same time he did not wish to go so far as always to condemn an early resort to passive motion, for he had seen cases in which it had been the means of bringing about mobility where otherwise such motion would have been lost. But, as a general rule, it would be better to let nature have her own way, rather than attempt to force it by early resort to passive motion, and so far as his experience went he was prepared to endorse the rule advanced by Dr. Hall.

Dr. Yale said that, from his own experience, prolonged rest of a joint is not productive of the ankylosis often attributed to it. Not only with diseases of joints, but with fractures in the neighborhood, it had been his habit to keep them in a fixed position rather a long time than otherwise, and he had not been troubled subsequently with ankylosis. Furthermore, he had seen some cases in which immobilization had not been the cause of ankylosis when it did occur. He recalled one case in particular, that of an elderly lady who fell down some steps and broke her humerus. The splint which was applied fixed the elbow- and shoulder-joints, but the hand was intentionally left free so that it should not become ankylosed. In the result the elbow- and the shoulder-joints were free very much earlier than were the joints of the hand, which were never fixed in a splint nor suffered any injury. He was obliged to work for several weeks with passive motion before succeeding in limbering up the joints of the hand.

Dr. L. S. Pilcher said that unfortunately he did not have the opportunity to hear very much of Dr. Hall's paper, but from what he did hear, and from what had been said, he inferred that an important point made by the writer in the treatment of fractures at the lower end of the radius had been immobilization of the wrist-joint. If such had been the case, his own observation and experience had been rather to the contrary. Notwithstanding he was fully in accord with the idea, as a rule, of immobilization of joints, either when they are themselves the seat of an injury, or when the parts in the immediate neighborhood have been injured; for it had seemed to him that in attempts at early mobilization there is danger of increasing or prolonging irritation by the movements of the fragments, caused by contraction of those muscles which are inserted into the immediate neighborhood of the affected parts, these contractions being both voluntary and involuntary, provoked by passive motion. The main reason why passive motion should not be used would be found in these results, and not in anything produced in the joint itself.

But in this injury at the wrist-joint there is an entirely different condition of affairs; in fracture at the lower end of the radius we do not by passive movements set in motion muscles which are attached in the immediate neighborhood of the affected part. The only muscle which could be brought into motion is the pronator quadratus—all the other muscles terminate in tendons which pass beyond the affected parts, with the exception of the supinator longus, which in the ordinary movements of flexion of the joint is not brought into use at all. The great masses of the extensors and the flexors are not so related to the injury as either voluntarily or involuntarily to produce movements of the parts which increase irritation, while the movements of the articular surfaces upon themselves produced by passive motion are innocuous.

It seemed to him that in these injuries the greatest difficulty with which we had to contend, and the evil results of which we wished to avoid, was the tendency to effusion and subsequent adhesion along the sheaths of the tendons, and that in the movements properly guarded which may be produced at a very early date the formation of these adhesions may be prevented, adhesions which, if not prevented, will produce after-stiffness of the parts for a considerable period, and sometimes render the joint useless. His own practice during the last twelve years had been based upon this theory, and during this time he had thrown aside entirely splints of all kinds. After the fragments have been properly replaced he simply encircles the part by a band of adhesive plaster an inch and a half wide, which pretty firmly binds them together. This he reinforces by a roller bandage applied to the hand and forearm, which gives a sense of greater security, and diminishes the tendency to flexion present in the earlier days of the injury. In this way the hand and the fingers are left to the natural movements. By this method he had treated patients of all ages, and the result had been uniformly satisfactory, certainly much more satisfactory as regards functional result than the results usually expected to be attained by surgeons. As an illustration of the method, he presented a patient, a woman forty-five years of age, who a little more than two weeks previously had fallen upon the pavement and sustained in the usual way fracture of the lower extremity of the radius, at the same time tearing off the styloid process of the ulna also.

He further remarked that in only two cases had he applied any other dressing after the receipt of this injury, and in both instances it was done simply to satisfy the fears of either the patient or the friends. In one case a circular starch bandage was used which completely immobilized the wrist, and in the other Levis's metallic splint was used.

Of course, he appreciated the fact that very great differences exist in the character of the injuries which we are in the habit of placing under the general head of fracture of the lower extremity of the radius, and that in cases of severe comminution of the lower fragments particularly it might be desirable to immobilize the wrist-joint. But in the ordinary cases, where the lower fragment is simply torn off, with more or less displacement, without such a degree of injury of the parts about the wrist-joint as to produce a very serious complication of the case, it seemed to him that in the simple retentive bandage there is given a sufficient apparatus for the successful management of these cases, and after an experience of three years, which has been reinforced by the experience of many others who had used the same method, he was ready to believe that it is sufficiently efficient, and that it will give just as good results as the use of splints. In the application of the bandage he would say that it is always a matter of first importance accurately to reduce the fragments, and after that a simple circular bandage in the great majority of cases will be found sufficient to carry it to a satisfactory conclusion.

Dr. C. K. Briddon said that for more than eight years he had a service in the New York Dispensary, where there were treated between four and five hundred fractures of the lower end of the radius, nearly all of which came under his supervision. In the early part of that period they were treated by immobilization by the ordinary pistol splint, and no passive motion was used until at the end of four or five weeks, and in a large percentage of these cases fair results were obtained, stiffness remaining only for a short period of time. In other cases, treated by the use of the dorsal in addition to the palmar splint, the results were unsatisfactory as regards subsequent mobility of the joint.

His impression had always been that the stiffness

which follows this injury does not depend so much upon the character of the treatment, or immobilization, or passive motion, as upon the nature of the injury itself. In the simple fractures very good motion is usually obtained, although in some cases there is stiffness of the fingers.

He certainly reached one conclusion during his term of service, and that was, no matter whether the case was treated with plaster-of-Paris splint or with a short pistol splint, or otherwise, a great deal of mischief was done by the dorsal splint. In all the latter part of his service in the dispensary he never used the dorsal splint, but especially the pads, which were commonly placed upon it, and also upon the plantar splint, in the neighborhood of the fracture. He had found that they produced inflammation of the sheaths of the tendons, and that an undue degree of stiffness remained. For a number of years he had not used any posterior splint at all, but had simply employed a curtailed anterior splint, padding the radial aspect of the splint to fill up the concavity of the forearm, and leaving the ulnar portion of the splint free, and he had obtained fair results.

He thought that a good deal of the deformity and of the stiffness which remained in these cases was due to the fact that the fracture was not reduced. It is sometimes exceedingly difficult to make complete reduction, and that difficulty does not occur in bad fractures, but in cases in which the lesion is moderate, involving the bone simply, and not tearing away the fibrous structures of the joint, which continue upward in the periosteum for a distance above the usual site of fracture. In the cases in which considerable damage is done, the mobility of the parts is such that they are easily restored. If, therefore, great care is taken to reduce the fracture completely, the fragments will be retained in position with the simple treatment devised by Dr. Pilcher; but where there is considerable damage done to the parts about the joint he believed that to depend upon a simple retentive bandage would be liable to be followed by a good deal of mischief and bad results; at least that had been his personal experience, as he had treated some cases, not many, with the simple retentive apparatus, and the swelling and inflammation had gone on increasing, and he thought that the swelling and inflammation were consequent upon the mobility permitted by the simple retentive dressing. He could not conceive that, where there was much mobility of the parts, this simple retentive bandage would answer. He did not wish by any means to condemn the method advocated by Dr. Pilcher, but simply to state that such was the result in the few cases in which he had attempted to treat the fracture in that way.

Dr. J. C. Hutchison said that for a number of years he had treated fractures of the lower end of the radius in the manner shown on the patient introduced by Dr. Pilcher, which, it was only fair to say, was brought to the attention of the profession by Dr. Moore, of Rochester, in a paper read before the Medical Society of the State of New York many years ago, in which he expressed the opinion that there was with this fracture dislocation of the ulna in more than half of the cases. Dr. Moore cited five cases which he thought established his view. They were all severe cases, and probably there was dislocation of the ulna. His method consists in applying a compress over the lower end of the ulna, which is retained in position by surrounding it with adhesive plasters, as seen in Dr. Pilcher's case. Since then Dr. Hutchison has adopted this method almost invariably, and with most satisfactory results. There had been much less stiffness of the fingers, less ankylosis, and less pain than in the use of former methods, and the treatment was much less troublesome to the surgeon than any which he had employed. He agreed entirely with the statement made with reference to the satisfactory results obtained by this method of treatment. Of course, perfect results are not to be expected in every case by any method of treatment.

Dr. Briddon thought the theory of Dr. Moore was not that there was a dislocation of the ulna, but a displacement of the extensor carpi ulnaris.

Dr. Pilcher said that in previous discussions of this subject he had credited Dr. Moore with his suggestion concerning the pathology and treatment of these fractures, and it might not be out of place to state again that the turning of his attention to the possibility of doing away with the splint was due to Dr. Moore's original paper on the subject, published in the *Transactions of the Medical Society of the State of New York for 1870*. Soon after reading it a case of an aggravated character came under his observation in which a great deal of displacement presented itself. There were all the evidences of the condition described by Dr. Moore as present in dislocation of the extensor carpi ulnaris, and his method of manipulation as applied by Dr. Pilcher was successful in restoring the parts to their natural condition. Dr. Moore's bandage, as he supposed, was then applied. The case progressed to an excellent termination. When the patient was about to be discharged from treatment, Dr. Pilcher found that instead of placing his pad under the ulna, as strongly urged by Dr. Moore, he had placed it underneath the radius. The good result notwithstanding, led him to believe that the entire value of the apparatus was in the retentive bandage, and not in the particular mode of dressing or in the compress, and from that time he had thrown aside the compress and had used the retentive bandage, with the results already stated.

Dr. Sands said he thought it would be inexcusable to make the statement that the results were uniformly good in the treatment of this fracture. He was sure he had seen bad results in old people, which were inevitable, and in a certain proportion of cases in which the fracture is severe and the patients old, more or less stiffness will be the result. He did not believe, as Dr. Briddon had already stated, that the treatment alone was responsible for such failures. He could hardly believe that any method would produce uniformly good results, and he doubted whether such a statement should receive the endorsement of the Society.

Dr. Pilcher said he hoped that nothing which he himself had said would lead to the suggestion which Dr. Sands had expressed, for he had simply stated that in the cases presented to him, and treated in this way, the results had been good. He perhaps had been fortunate in not having had presented to him any cases with the conditions which Dr. Sands had referred to, and he would dislike very much as being understood as saying that there were no cases which would not result unsatisfactorily no matter what method was employed. What he had desired to emphasize was simply that in the

ordinary fracture of the lower extremity of the radius the simple retentive bandage is as effective as any other method of treatment.

Dr. Sands said that was the exact point; he was unable to see how the Society could safely endorse the statement that the results are uniformly good by any method of treatment, and he was prepared to protest against it.

Dr. Gerster said that in his service during the last seven years at the German Dispensary, the number of fractures of the lower end of the radius was quite considerable, and he had, during the last five years, in a large majority of these cases, employed the simple dressing proposed by Dr. Pilcher. He had employed it where he believed it would be sufficient, and, as a rule, it had been found to be efficient in these cases. The results were certainly just as good as those obtained by any other method of treatment; but especially better than those obtained where splints had been employed which included the metacarpo-phalangeal joints. The majority of cases of fracture of the lower end of the radius were such, in which, so far as replacement of fragments was concerned, no difficulty was experienced, and good results were gained. If, however, long splints, including the hand, were employed, as was seen in a number of cases admitted for after-treatment, a pseudo-ankylosis of the tendons and of the small joints of the fingers was produced by the prolonged inactivity: a more serious condition than the fracture itself, especially in old people. In the cases treated by Pilcher's method the patients could almost at once resume their avocations, from the time when the bones had united. He believed the movements of the fingers, after treatment by other methods, were not as free as they are seen to be preserved under this simple retentive bandage.

He stated, on the other hand, that it is a treatment to be applied only in those cases where the replacement and retention of the fragments are easy. There are cases, fortunately not very numerous, where this retentive bandage does not suffice. It may be said that these difficult cases will give poor results under any form of treatment, but a large number of cases are such as admit of easy replacement and retention of the fragments, and in these cases Dr. Pilcher's retentive bandage had proved very satisfactory indeed.

Dr. Stimson said, with reference to rigidity of the fingers following immobilization, that he heard with surprise the statement made by Dr. Hall, that immobilization of the fingers does not end in rigidity. He was under the impression that it is a fact of common observation. He thought, also, that it is a matter of general observation that rigidity of the fingers occurred, as in the case mentioned by Dr. Yale, when the limb was immobilized in the treatment of injuries even above the elbow. He had a case now under observation in which almost complete rigidity of the fingers followed their immobilization for two weeks in the treatment of a simple unintlamed incision of the skin of the palm.

He agreed fully with Dr. Hall concerning the absolute value of immobilization of the wrist. As to the objection raised by Dr. Hall, that passive movements of the fingers are liable to increase the inflammation within the sheaths, Dr. Stimson thought the danger a remote one, because, in the first place, the range of motion of the fingers is so slight; and, secondly, the tendons are so well protected from sharing in the primary injury, in front by the pronator quadratus, behind by the usually untorn periosteum.

The result in Dr. Hall's cases, which showed that in thirty-one out of forty-one cases no deformity was left, was by far better than the average, and he thought that if Dr. Gerster had heard Dr. Hall's results he would not have made the statement that the retentive bandage had given results superior to any other.

Again, the point raised by Dr. Sands that some cases do not afford good results, he thought an important one In the patient presented by Dr. Pilcher, it seemed to him that the deformity had not been completely reduced, and that the fingers were not free now. In those cases of fracture of the lower end of the radius in which the distal fragment is split into several pieces, the chances are that recovery will take place with a limitation of motion. Furthermore, there are cases in which the intermediate spongy portion of the bone is so crushed that he thought the lower fragment could not be safely brought down without risk of failure of union; such cases are best treated without making an attempt to overcome the shortening of the radius. The resulting deformity is not great and is not accompanied by diminution of function.

Dr. Hall said he expressly stated that immobilization in the extended position would be followed by stiffness, accompanied by discomfort to the patient. Hence, all the cases had been treated in the manner described. After effusion has taken place and fibrin been deposited, its place is taken by organized and vascularized tissue, so that in making motion bloodvessels are ruptured, which gives rise to a fresh exudation that only increases the rigidity of the tendons. He should regard Dr. Pilcher's case as one in which there was marked displacement of the hand toward the radial side, with considerable limitation of motion. He had seen several fractures treated in this manner, and one in which Dr. Moore was said to have applied his own apparatus, and had not been pleased with the results as a rule. Dr. Hall failed to see how a simple band of adhesive plaster about the wrist could hold the fragments in position when there was a tendency to recurrence of the displacement on any mechanical theory whatever.

Dr. Gerster said he did not wish to be understood as saying that the results obtained by him in the use of Dr. Pilcher's retentive bandage were better than any others; simply that they were fully as good as those obtained by any other treatment.

Again, he took exception to the explanation given by Dr. Hall concerning the effect produced by passive motion on the sheaths of the tendons in which exudation has taken place, as he did not believe that passive movement of a smooth tendon would increase the exudation or produce any additional amount of inflammation, nor did he believe from *a priori* reasoning that such a result was very probable.

Dr. Pilcher presented a patient with

DISLOCATION OF THE ACROMIAL END OF THE CLAVICLE.

He brought him for the purpose of demonstrating a method of treatment which had, in this case at least, been apparently effectual. The patient was a professional athlete, and one of his feats consisted in raising casks of water with his teeth, and as a result of this prac-

tice there had developed a considerable degree of elevation of the acromial end of the clavicles, well observed now on the sound side. Two weeks ago he fell upon his shoulder in the course of one of his performances, and it was found that he had sustained a dislocation of the acromial end of the clavicle on the left side. Dr. Pilcher saw him a few minutes afterward, and at that time the elevation of this end of the clavicle was well marked and characteristic.

The apparatus which he had employed was extemporized on the spot out of a simple roller bandage, and had as its central idea the utilization of the weight of the hand and forearm as a constantly acting force to maintain the loose end of the clavicle in its proper relation to the scapula. This was accomplished by first looping one end of a roller bandage — two inches wide—around the middle of the forearm, and then passing the bandage directly up and over the affected acromial end of the clavicle, where a few folds of bandage had already been placed to serve as a compress. Thence the bandage was carried diagonally downward and across the back, continuing straight around the body, until having encircled the body, it reached again the middle of the back; it was then slipped under the first line of bandage, and brought back upon itself again to the front; by this manœuvre forming a loop around the first bandage and securing it from slipping from its proper place. In bringing the bandage to the front after having been thus looped around the back bandage, it was made to pass under the elbow and thence directly upward in front over the point of injury again; thence it followed the line of the first course of bandage across the back and about the body, this time passing outside the arm at its middle, so as to bind it to the side; thence it was again passed around the body, and over the arm, but now was made to return about the elbow, from behind forward, and then upward in front once more over the loose acromial end of the clavicle to the middle of the back, where it was secured by a pin; other pins having been used to secure the various points of intersection of the bandage, the dressing was complete. The patient, when presented, was still wearing the original dressing, applied two weeks before; it had proven to be comparatively little irksome, had shown no tendency to slip, and had been efficient in this case to retain the loose end of the clavicle in its proper place. Attention was called to the simplicity of the dressing, and to the satisfactory degree to which it fulfilled the indications for treatment in this injury.

DR. STIMSON said that four or five years ago he reported a method of treating this dislocation, which consisted in the use of a strip of adhesive plaster, starting from the centre of the sternum, crossing the outer end of the clavicle, passing down behind the arm, under the olecranon, up in front of the arm, and over the shoulder to the middle of the back.

The method had given him good results in four cases. The criticism which he would offer on Dr. Pilcher's method was that as the weight of the forearm was partly supported by the later turns of the bandage, the remainder, which was expected to act upon the clavicle, would be too slight to be efficient. Dr. Pilcher's reasons for preferring, in Colles's fracture, the strip of adhesive plaster to a more complicated dressing seemed to him equally applicable to this injury.

DR. PILCHER said that the traction made by the weight of the hand and forearm was not very great, to be sure, but this small amount of traction continuously applied, he thought, might be of value. He presented the case because it was in the course of treatment according to a method which he had not yet seen mentioned.

DR. HALL said that two months ago he treated a case of this kind with a somewhat elaborate apparatus, which pleased him very much, but it did not please the patient, who removed it after two weeks, and went to work again, carrying heavy trunks, as had been his custom to do, being a porter. There was a displacement of the clavicle upward for at least half an inch, but the patient said he knew of no difference in strength between the two shoulders.

DR. GEORGE A. PETERS said that for some time past he has not made use of any apparatus in this dislocation except that of the simplest kind, with a view to correction of the deformity in man, but in the treatment of women he had endeavored to get as little deformity as possible. The result, however, in females had been somewhat better than it had been in males.

A committee, consisting of Drs. Markoe, Sands, and Hall, was appointed by the Chair to examine the wrist of the patient presented by Dr. Pilcher, and to report the exact condition of the part.

DR. T. M. MARKOE reported that the case appeared to be a remarkably successful one. He recognized the dorsal displacement as being entirely obviated. The radial displacement at first, he thought, was entirely obviated, but as Dr. Hall elevated the hand he could recognize a slight radial displacement, but beyond that the position of the parts is exceedingly satisfactory, and he would be willing to take it as a type of his best success.

DR. SANDS reported that on examining the forearm he found an absence of dorsal displacement, but there was decided prominence of the ulna and shortening of the forearm along the radial border. He did not think that this displacement would interfere with a good functional result. The styloid process of the ulna was prominent, the hand was abducted, the radial border was somewhat shortened, and the styloid process of the radius was higher than it should be. There was no dorsal displacement so far as he could discover.

DR. HALL agreed with Dr. Sands, except that he thought there had been a failure to replace completely the lower end of the radius. He thought there was a certain amount of this, although it was not obvious on account of the swelling of the soft part, but which would appear when the œdema subsided. The functional result would doubtless be perfectly good.

RHODE ISLAND MEDICAL SOCIETY.

Quarterly Meeting held at Providence, March 18, 1886.

THE PRESIDENT, OLIVER C. WIGGIN, M.D., IN THE CHAIR.

THE PRESIDENT announced the recent death of two Fellows, Dr. Josiah W. Robinson and Dr. Benedict F. Gorman, both of Providence.

Dr. Albert Potter, of Chepacket, was appointed by the Chair Vice-President *pro tem.*, to fill the vacancy caused by the death of Dr. John W. Sawyer.

Dr. H. R. Storer, of Newport, exhibited a large

FIBROID POLYPUS

which he removed recently from the vagina of a woman, thirty-seven years old. The growth, when first removed, both in size and shape, closely resembled the heart of an ox. It had completely occluded the vagina, and some doubt had existed as to the differential diagnosis between a "fibroid growth and uterine inversion." The tumor was attached to the margin of the cervix, anteriorly and to the left. The attachment could only be reached by passing the whole hand into the vagina. The woman had suffered from excessive menorrhagia, and was quite exsanguine. The tumor was successfully freed from its attachment by means of the chain *écraseur*, but it was found absolutely impossible to remove the mass by means of large toothed traction forceps. As no obstetrical forceps were at hand, a vectis was improvised from the handle of a spoon, and with this, aided by the hand and arm passed into the rectum and pressing upon the mass, at the time of traction by forceps, delivery of the growth was accomplished. It is now the fifth day since the operation, and the woman has not had an unfavorable symptom. The cervix had been forced upward and to the left by the growth of the tumor, and the fundus uteri displaced to the right.

Dr. Storer further remarked that in diagnosticating between a growth like this filling the vagina, and inversion of the uterus, he depended quite largely upon the extent to which a catheter would enter the bladder. In this case an ordinary gum elastic catheter would enter one-half or two-thirds of its length.

Dr. Job Kenyon asked whether the greater degree of sensibility of an inverted uterus would not serve to distinguish it from a fibroid growth. He had found this a very great help in the diagnosis.

Dr. Storer said that that point of distinction did not prove as reliable as might be expected. In his case, just reported, the lower extremity of the tumor was softer than would be expected.

Dr. Ely raised a question as to the safety of forcing the hand and wrist through the sphincter ani muscles completely into the rectum. Was it justifiable in view of possible after-effects?

Dr. Storer replied in the affirmative and said that the opinion of the profession upon this subject had changed greatly within the last few years. In this instance, the patient had no incontinence of feces and a natural stool occurred on the fourth day. But it depends wholly upon the condition of the parts at the time, whether or not the measure is admissible.

Dr. F. C. Clark read a paper on *Preliminary Medical Education.*

Dr. H. R. Storer read a paper on

THE ANTICIPATORY TREATMENT OF LOCAL EPIDEMICS,

and then made the following motion, which was adopted:

"That a committee of three be appointed by the Chair to memorialize immediately the General Assembly upon behalf of this Society, requesting it to authorize the State Board of Health to investigate personally and restrain, through its Secretary, local outbreaks of zymotic disease, including cholera, yellow fever, smallpox, diphtheria, scarlet fever, typhus, and malignant typhoid, as they may occur within the State, and to appropriate for such additional service, during the ensuing year, a sum not to exceed five hundred dollars."

The Chair appointed upon this Committee, Drs. H. R. Storer, G. T. Swarts, and E. M. Snow.

MISCELLANEOUS BUSINESS.

Dr. Wm. Benjamin Goldsmith, the recently appointed Superintendent of Butler Hospital for the Insane, was elected to Fellowship.

The Chair announced the following delegates to the next meeting of the American Medical Association: Drs. W. E. Anthony, A. B. Briggs, H. Canfield, E. T. Caswell, C. V. Chapin, S. Hunt, Geo. H. Kenyon, Job Kenyon, Dan. O. King, H. G. Miller, John H. Morgan, Geo. R. Smith, H. R. Storer, O. C. Wiggin, and Wm. R. White. Five vacancies were left to be filled subsequently.

Dr. Robert F. Noyes read a paper on *The Exocardial Murmur.* Adjourned.

NEW YORK STATE MEDICAL ASSOCIATION.

Fifth District Branch.

Special Scientific Meeting, held in the Common Council Chamber, Yonkers, N. Y., March 23, 1886.

The President, J. G. Porteous, M.D., in the Chair.

Dr. J. P. Garrish, of New York, read a paper on

THE PHYSICIAN AND THE PHARMACIST—THEIR RELATIVE DUTIES,

in which he advocated the destruction of physicians' prescriptions by druggists at the end of thirty days after the reception of the same, and a number of other reforms in the present methods of dispensing medicines.

Dr. Alfred L. Carroll, of New Brighton, Staten Island, read the report of a

CASE OF MENINGEAL EXTRAVASATION, WITH REMARKS ON THE LOCALIZATION OF THE SUPERFICIAL LESIONS.

The phenomena described in the case were apparently traceable, he said, to an origin in a limited area bordering on the pons and medulla oblongata. The probable etiology of the disorder was, that a mastoid abscess on the left side, from which the patient had suffered eight years previous to the attack, led to thrombosis of the inferior petrosal and transverse sinuses, perhaps with phlebitis sinuum, possibly with some basilar meningitis; thus leaving special vulnerability in the region about the basilar groove.

Peculiar subjective derangements of taste which were noted were probably to be ascribed altogether to the glosso-pharyngeal, without supposing any lesion of the gustatory branch of the inferior maxillary or chorda tympani, as the perception of saline and bitter flavors appears to pertain to the posterior and lateral parts of the tongue, supplied by the former nerve. Disturbance of articulation, also noted, was, of course, referable to the hypoglossal; but here, too, there was no involvement of the muscles innervated by the descendens noni. If the superficial origins of the nerves concerned, and their relations to the transverse sinus, be remembered, this selective localization becomes to some extent explicable. The third pair, arising from the inner surfaces of the crura, above the pons; the fourth, from the valve of Vieussens and curling around the crura

also in the groove above the pons; the sixth, emerging from the furrow between the corpora pyramidalia and the lower border of the pons; and the seventh, springing from the posterior median fissure and the groove between the restiform and olivary bodies, and curving around the restiform columns in the depression between the medulla and pons; all these are in great measure shielded from pressure or local irritation.

On the other hand, the fifth reaches its exit from the antero-lateral convexity of the pons, close to the margin of the basilar groove; the glosso-pharyngeal and pneumogastric, with the small accessory root of the eighth, from the lateral tract, just behind the corpus olivare; and the hypoglossal from the groove between the olivary body and the anterior pyramid, in situations much more exposed; while the spinal root of the eighth takes its origin almost entirely below the foramen magnum.

Another circumstance which points to a localization about the transverse sinus is, that while the facial anæsthesia and dysæsthesia noticed were chiefly on the side of the former mastoid lesion, the muscular and sensory disturbances through the brachial plexus, though bilateral, were most marked on the opposite side; simulating in a less degree the phenomena of "crossed palsy," which is usually caused by grave changes in the lower part of the pons on one side. If we imagine a source of pressure originating on the left side and extending along the line of the cavernous sinus and across the transverse groove, we shall have the conditions to account for these peripheral manifestations.

In regard to hiccough, which continued for six days in this case, Dr. Carroll said that its pathogeny was somewhat difficult to understand, although we know empirically that this symptom and vomiting are commonly associated with pressure upon the pons or upper part of the medulla, and that where it has a different central origin it is often from diseases of the cervical cord, whence the phrenic nerves arise. In the present instance its causation is probably to be sought in a reflex from centripetal strands of the pneumogastric.

In relation to retention of urine, which continued for seventeen days, he said it must be remembered that the renal sphincter is habitually in a state of contraction, governed by its tonic centre in the cord at the level of the origin of the second to the fourth sacral nerves, the centre for the distensor being just below; and that normal micturition is largely a reflex action, the part played by the voluntary system being chiefly to inhibit the automatic control of the sphincter. Hence, pressure along the anterior motor tract of the mesencephalon may account for this isolated vesical paralysis without paraplegia or other implication of parts supplied by the lumbar or sacral nerves.

In conclusion, Dr. Carroll said that, notwithstanding the immense advances of our knowledge of the pathophysiology of cortical and intracerebral lesions, comparatively little attention has been attracted to localized superficial interference with nerve function, and the paucity of observations in this respect may serve as an excuse for submitting to discussion a plausible commentary on the phenomena of a case, the bare recital of which would possess but small interest.

DR. J. W. S. GOULEY said that notwithstanding the ingenious explanation of the retention of urine in this case, we should not lose sight of the fact that without any paralysis whatever retention may take place, as in drunkenness, for instance. There may be so much general anæsthesia that no effort is made to evacuate the bladder.

DR. CARROLL said, in reply, that his patient did experience the desire to urinate, but was unable to do so; so that he had to teach him the use of the catheter.

DR. GOULEY then said that as the patient was unconscious for a time, he still thought that the cause of the retention might not have been directly due to paresis.

DR. GOULEY then read a paper on

SACCULATION AND PERFORATION OF THE BLADDER AS CONSEQUENCES OF CHRONIC RETENTION OF URINE.

Sacculation, he said, is of frequent occurrence in men, but is rare in women. While many authors had previously referred to the condition, it was reserved for Mercier, of Paris, to give the first clear and definite description of it, in 1836.

There are two forms of sacculation, the single vesical pouch, and multiple diverticula. All authors are agreed as to the cause, though retention giving rise to it is recognized as of various origin. The size of the vesical pouches is in inverse ratio to their number; and the sacculation may occur in any part of the bladder except the trigone. Having described a specimen which he dissected some years ago at Bellevue Hospital, and mentioned a case reported by Dr. Warren Green, of Maine, in which the pouch was of enormous size, he referred to a rare case of Dr. Charles D. Smith's, in which there was a single diverticulum situated at the summit of the bladder.

Vesical pouches, large or small, rarely empty themselves. The urine thus becomes putrescent, and, in consequence, ulcerative processes, abscesses, and death from pyæmia or exhaustion are liable to result.

The diagnosis of sacculation is often extremely difficult under the most favorable circumstances, and in many cases, even where there are large sacs, the condition is not recognized during life. These cases of large sacs, which were sometimes of immense size, are often mistaken for other kinds of tumors, and Dr. Gouley gave a number of interesting instances of such errors in diagnosis. There are, however, diagnostic signs by which they can usually be recognized, if sufficient care, is observed, though these are few in number. As obstructed urination is the principal cause of sacculation, in any case where this has existed for some time, the medical attendant ought to be prepared to suspect the existence of the condition. If the sac is large, the diagnosis can often be made by drawing off the urine with a catheter, and, after withdrawing the instrument and waiting a short time, reintroducing it. It is rare that in a case of sacculation much urine can be withdrawn at any time. When the sac is not large, and situated posteriorly, the evidence afforded by exploration with a catheter is the only sign; and in the case of small diverticula there are no certain signs.

The prognosis is generally bad in the case of large sacs, but not in sacs in which there are calculi. The preventive treatment consists in the removal of the obstruction to urination, such as the dilatation of the urethra in case of stricture, the excision of a portion of the prostate, or, at least, systematic catheterism, in enlarged prostate, etc. But the removal of the obstruc-

tion is not enough. The cystitis, which has resulted from it, requires to be treated by irrigation and other appropriate measures.

The treatment of sacculation, when present, consists in the removal of the cause or causes to which the retention of urine producing it is attributable, and the use of frequent irrigation. It must be remembered, however, that a largely distended sac should never be completely evacuated at once. It is a good practice to remove about a pint at a time, and then inject half a pint of warm borax solution into the bladder; repeating this procedure every hour. It is dangerous and unwise to tap a distended diverticulum. In order to secure the evacuation of a sac, it is usually necessary to change the position of the patient frequently. It is well to make use of a compressing bandage; but the catheter must not be allowed to remain in the bladder.

Dr. W. B. Eager, of Middleton, Orange County, related the case of a man who was brought to him from a distance of nine miles suffering from retention of urine. He suspected that he had stone, and introduced Thompson's searcher; but could find no evidence of stone. The prostate was found to be enlarged. He withdrew, to his surprise, only about two tablespoonfuls of urine. He then introduced the searcher again, and found that its extremity passed to a great distance, and was movable in any direction. He removed the plug and drew off seventeen ounces of urine which was high-colored, but clear and non-purulent. He then injected eight ounces of warm water. It occurred to him that this might, perhaps, be a case of sacculation, though possibly it was only one of overdistended bladder.

BIOGRAPHICAL NOTICES

of the late Drs. J. G. Collins and Desault Guernsey were read by Drs. N. C. Husted, of Tarrytown, and G. H. Codding, of Amenia, Dutchess County.

The Chair appointed Drs. Alfred L. Carroll and E. H. Squibb a committee to prepare and publish appropriate resolutions in regard to the death of the late Dr. Austin Flint.

It was decided that

THE NEXT SPECIAL MEETING

should be held at Kingston, Ulster County, on the third Tuesday in June next.

NEWS ITEMS.

CHICAGO.

(From our Special Correspondent.)

Chicago Medical College.—The twenty-seventh annual commencement exercises of the Chicago Medical College, Medical Department of the Northwestern University, were held on March 23d. The degree of Doctor of Medicine was conferred upon thirty-five members of the Senior Class.

During the past session a well-equipped pathological laboratory has been created, and placed under the direction of Dr. Nathan S. Davis, Jr. Work is obligatory on the part of the students in the various laboratories, but no extra fees are charged. The friends of the school hope to secure the endowment of a physiological laboratory before the commencement of the next winter session.

Col. Waring will deliver the annual oration before the Medical and Chirurgical Faculty of Maryland, on the second day of the meeting (April 28th, at 12 oclock M.); title, "The Removal and Destruction of Organic Wastes."

Arkansas State Medical Society.—The eleventh annual session of the State Medical Society of Arkansas, will be held on Wednesday and Thursday, April 28th and 29th, commencing on Wednesday at 10 A. M.

The Mississippi Medical Association will convene at Jackson the 21st day of April. The railroads will return members home at one-half regular rates.

Jefferson Medical College.—The commencement exercises of the Jefferson Medical College were held on the 2d of April. The degree in medicine was conferred upon 223 gentlemen.

Atlanta Medical College.—The commencement exercises of the Atlanta Medical College were held on the 1st of March. Thirty-eight gentlemen were graduated.

University of Louisville.—The commencement exercises of the Medical Department of the University of Louisville were held on the 2d of March. The Doctorate was conferred upon eighty-one gentlemen.

University of Nashville.—The commencement exercises of the University of Nashville and Vanderbilt University were held on the 25th of February. The graduating class numbered ninety-six.

The Philadelphia Polyclinic and College for Graduates in Medicine has established a hospital for operative and other cases at the College building, Broad and Lombard Streets, Philadelphia. A number of ward patients have already been treated in the new hospital.

State Hospital for the Insane.—At the last meeting of the Trustees of the State Hospital for the Insane, the following resolutions were passed:

Resolved, That the physician-in-chief and superintendent be requested to give general notice that, from two to six o'clock of the afternoons of the second and fourth Wednesdays of each month, he will give advice and counsel to those who may feel that the symptoms of mental disorder are developing in themselves, or in any member of their family.

Resolved, That the physician-in-chief and superintendent be also requested to prepare a series of papers for general distribution on the prevention and causes of mental disorder.

The hospital is located in Warren, Pa., and now numbers 636 patients.

Sir William Turner.—The profession will learn with pleasure that the Queen has conferred the honor of knighthood upon the distinguished Professor of Anatomy at the University of Edinburgh, in recognition of the value of his labors to science.

Herr v. Gossler, medicinalrath, has announced that from next summer students in Prussian universities must undergo instruction in vaccination with animal lymph.

English Hydrophobia Commission.—There is reason to believe that the eminent pathologists, Sir James Paget, Professor Burdon Sanderson, and Dr. Lauder Brunton, have, together with Sir H. Roscoe, who initiated the matter, consented to serve on the Commission to inquire into M. Pasteur's method of inoculation for hydrophobia; and that the Government intend to seek in addition the services of a few distinguished physicians, including Sir W. Jenner. As soon as the details are arranged the Commission are expected to proceed to Paris, personally to investigate M. Pasteur's proceedings and their results.

Obituary Record.—James H. Davidson, M.D., was born in Georgetown, D. C., Sept. 2, 1828; died March 8, 1886. Graduated at Princeton College 1848. Studied medicine under the late Prof. Joshua Riley, and graduated at the Columbian College Medical Dept. in 1851. Practised for a short time after graduation near Frederick City, Md., finally settled in Bethesda Dist., Montgomery Co., Md., five miles from Washington, D. C. In this thickly populated neighborhood he has for the last thirty-five years practised his profession. Up to within a few days of his death he was engaged in active and laborious work; his death was caused primarily by overwork and exposure to the severe cold weather. He was an excellent physician and a safe counsellor in all things pertaining either to professional or business matters. An upright, honest gentleman, and a devoted husband and father, he leaves a wife (the eldest daughter of the late Henry Bradley) and three sons, the eldest having recently graduated from Princeton College. Dr. Davidson and his family always took an active interest in the Episcopal and Presbyterian churches near their beautiful home, and were ever ready to give a helping hand to aid religion and charity in whatever form it presented itself.

—— Dr. Samuel W. Francis died at his home in Newport, R. I., on the 25th inst., aged fifty years.

Dr. Francis had lived in Newport for twenty years, and was highly esteemed as a skilful physician and a generous, public-spirited citizen, he having engaged actively in many enterprises for the prosperity and advancement of the city. He was a Fellow of the Rhode Island Medical Society, and also of the Newport Medical Society, and was greatly interested in the Natural History Society and the Historical Society of Newport. He was likewise an able and voluminous writer on subjects pertaining to medicine, biography, and chemistry, as well as literature and romance.

He was the original inventor of the type-writer, but failed to reap the benefits of his inventive genius in this direction. He did, however, receive nearly a score of patents for various inventions, and was the originator of very many more which were never patented.

In addition to the societies already named, he was the first President of the Newport Society for the Prevention of Cruelty to Animals, and was the originator of the Newport Sanitary Protection Association.

Death of Dr. Cobbold.—The death of Thomas Spencer Cobbold, M.D., F.R.S., F.L.S., is announced.

Dr. J. F. Streatfeild, F.R.C.S., Senior Surgeon to the Royal London Ophthalmic Hospital, died on the 18th of March.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from March 23 to April 5, 1886.

McElderry, Henry, *Major and Surgeon.*—Relieved from further duty in connection with New Orleans Exposition, and ordered, on the expiration of his present leave of absence, for duty in Department of the East.—*S. O. 71, A. G. O.*, March 26, 1886.

Banister, J. M., *Assistant Surgeon.*—Granted leave of absence for one month, to commence on or about April 2, 1886.—*S. O. 63, Department of the East*, March 26, 1886.

Cochran, John J., *Assistant Surgeon.*—Ordered for duty as Post Surgeon at Fort Mason, California.

Polhemus, A. S., *Assistant Surgeon.*—Ordered for duty at Presidio of San Francisco, California.—*S. O. 18, Department of California*, March 15, 1886.

McElderry, Henry, *Major and Surgeon.*—Ordered for duty as Post Surgeon, Ft. Wayne, Mich.—*S. O. 69, Department of the East*, April 2, 1886.

Loring Leonard Y., *Assistant Surgeon.*—Granted leave of absence for one month, provided that during his absence he furnishes the necessary medical attendance at San Diego Bks., Cal.—*S. O. 19, Department of California*, March 24, 1886.

Hoff, Jno. Van R., *Assistant Surgeon.*—Granted one month's leave of absence.—*S. O. 29, Department of Missouri*, March 29, 1886.

Appel, Aaron H., *Assistant Surgeon.*—Granted leave of absence for one month.—*S. O. 66, Department of the East*, March 30, 1886.

Johnson, Richard W., *Assistant Surgeon.*—Relieved from duty at Fort Buford, D. T., and ordered for duty (temporary) at Fort Snelling, Minn.—*S. O. 28, Department of Dakota*, March 29, 1886.

Official List of Changes in the Medical Corps of the Navy, for the Two Weeks Ending April 3, 1886.

Martin, H. M., *Surgeon.*—Detached from the "Independence," and ordered to the "St. Louis."

Guiteras, D. M., *Passed Assistant Surgeon.*—Detached from Navy Yard, Pensacola, and wait orders.

Ross, J. W., *Surgeon.*—Detached from special duty, New York, and ordered to Pensacola.

Eckstein, H. C., *Surgeon.*—Detached from the "St. Louis," and placed on sick leave.

Means, V. C. B., *Assistant Surgeon.*—Detached from the "Vermont," and ordered to the "Shenandoah."

Beaumont, N. H., *Surgeon.*—Detached from the "Enterprise," and wait orders.

Atlee, L. W., *Assistant Surgeon.*—Ordered to duty on U. S. R. S. "Vermont."

Official List of Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service, for the Week Ending March 27, 1886.

Wyman, Walter, *Surgeon.*—Detailed as Chairman of Board for Physical Examination of officers of Revenue Marine Service, March 27, 1886.

Sawtelle, H. W., *Surgeon.*—Granted leave of absence for thirty days, March 27, 1886.

Irwin, Fairfax, *Passed Assistant Surgeon.*—Granted leave of absence for seven days, March 22, 1886.

Ames, R. B. M., *Passed Assistant Surgeon.*—Detailed as Recorder of Board for Physical Examination of officers of Revenue Marine Service, March 27, 1886.

White, J. H., *Assistant Surgeon.*—Granted leave of absence for three days, March 23, 1886.

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL LECTURES.

CARTWRIGHT LECTURES.

ON CERTAIN PROBLEMS IN THE PHYSIOLOGY OF THE BLOOD CORPUSCLES.

Delivered before the Association of the Alumni of the College of Physicians and Surgeons, New York, March 30, 1886.

BY WILLIAM OSLER, M.D.,
PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

LECTURE III.

THE RELATION OF THE CORPUSCLES TO COAGULATION AND THROMBOSIS.

I PROPOSE, in this lecture, to consider the question of the relation of the corpuscles to the processes of coagulation and thrombosis, and I will first call your attention to the action of the *colorless corpuscles*. Our knowledge of the connection between these elements and coagulation dates from the observations of Buchanan in 1831. He attributed the action of what he called washed blood-clot, in inducing clotting, to the colorless blood corpuscles included in the meshes, and which he said acted as a sort of ferment, comparing the action to that of rennet. These views have been greatly elaborated by Schmidt, of Dorpat, and his pupils, to whose researches we are indebted for an important extension of our knowledge in this department of physiology.

According to these well-known observations, the colorless corpuscles furnish the fibrinoplastin or paraglobulin, and the ferment, while the third element, the fibrinogen, exists naturally in the blood plasma. Schmidt and his pupils hold that, in furnishing these two elements to make up the fibrin, the colorless blood corpuscles undergo disintegration and destruction. Part of the evidence which they bring forward in proof this is as follows: The blood plasma of the horse may be readily collected by keeping the blood at a low temperature and allowing the red blood corpuscles to subside, when a clear layer remains, consisting of plasma with a few red and many colorless corpuscles. Now, if a portion of this plasma is taken and whipped with twigs, the difference between the number of colorless corpuscles remaining in the serum and those in the original plasma represents the number of colorless corpuscles which have undergone destruction in the process of the formation of fibrin, and Schmidt and his pupils estimate that at least seventy per cent. of the colorless corpuscles undergo destruction in this way. They found that, instead of 15,000 colorless corpuscles in a cubic millimetre of the plasma before it is whipped —*i. e.*, before the fibrin is extracted—there were subsequently not more than 4000 per cubic millimetre remaining in the serum. Examining the clot so obtained, it is stated that the colorless corpuscles have largely, if not entirely, undergone destruction in the formation of fibrinoplastin and the fibrin ferment. This is, perhaps, the most convincing experiment which any one of Schmidt's pupils has brought forward to sustain the view, that colorless corpuscles undergo destruction in the process of coagulation. There are many other points urged by Schmidt to which I need not refer, as they are readily accessible in the works on physiology.

The researches of Wooldridge[1] have also shown that the colorless corpuscles play an important part in the formation of fibrin. He has been able to procure leucocytes from lymph glands in a tolerably pure condition, by means which he has described at length in his paper. These leucocytes when added to an equal volume of a ten per cent. solution of common salt seem to be converted into a material resembling very closely ordinary fibrin. By experimenting with what is known as peptone plasma he has obtained very striking results which would appear to indicate still more clearly that leucocytes play an important part in this process. Peptone plasma is obtained by injecting peptone into the bloodvessels and then bleeding the animal. Coagulation is prevented entirely by the influence of peptone, and the red blood corpuscles may be entirely removed from the serum by the centrifugal machine. This plasma shows no special inclination to coagulate, and is, of course, particularly suitable for experimental purposes. If the leucocytes prepared from the lymph glands be added to this plasma, coagulation at once occurs. If a small quantity of leucocytes is added, the amount of fibrin produced is small; if a larger quantity is added, more fibrin is produced. In fact, Wooldridge has shown that the amount of fibrin produced in the peptone plasma is directly proportionate to the leucocytes added. The leucocytes seem themselves to form the fibrin—perhaps the entire mass, for the weight of the fibrin produced is the same as the weight of the leucocytes added. Moreover the albumins in the peptone plasma, after coagulation, can be shown not to have undergone any change, but remain the same, quantitatively and qualitatively; and a third point is that the leucocytes appear to have undergone disintegration.

There are other points in Wooldridge's researches to which I shall not have time to refer at length, but he concludes that it is only the dead plasma which converts the cells into fibrin, as the injection of leucocytes into the blood of the living dog produces no effect.

Such facts appear to show very conclusively that the corpuscles do undergo disintegration, and yet if the blood plasma of the horse is examined after it has been whipped leucocytes may be found in the serum and also in the clot which has been produced, so that all the leucocytes have not undergone destruction. The existence of a certain number of the leucocytes after clotting has occurred has caused one of Schmidt's pupils, Heyl,[2] to divide the leucocytes into two sets: the alpha-leuco-

[1] Proceedings of the Royal Society of London, 1881.
[2] Dorpat Dissertation, Fortschritte der Medicin, 1883.

cytes, which undergo destruction during clotting; and the beta-leucocytes, which remain. From observation, I do not believe that the number of the leucocytes which undergo disintegration in the clotting of the horse's blood is anything like so extensive as Heyl states.

Although the evidence in favor of the destruction of the colorless elements seems conclusive, yet, if the fibrin formation is studied under the microscope, it appears to take place without any disintegration of colorless corpuscles, and it is extremely difficult to demonstrate their participation in the process. As is well known, it can be studied in a blood-drop examined in the ordinary way, or, better still, in the moist chamber. The time which elapses before coagulation begins is variable in different individuals and under different conditions. Usually, however, from fifteen seconds to two or three minutes elapse before the first appearance of the fibrin filaments is noticed. A slide can be prepared in a very few seconds, and there is sufficient time before clotting begins to examine the colorless corpuscles, the red corpuscles, and the blood plaques. I must say that, in a very careful examination of the process of the formation of fibrin in this way, I have never seen any appearance in the leucocytes which would indicate that, as the fibrin was formed, they underwent disintegration or dissolution. On the contrary, they seem most stable elements, and the amœboid movements persist long after the fibrin network is thick and dense in the field. Certainly in the microscopical examination of the ordinary slide, or in the examination of the blood-drop in a moist chamber, I do not think anyone has seen the direct disintegration of leucocytes in the production of fibrin. An interesting and instructive experiment is to draw the blood of a frog, or of the horse (in which Schmidt and his pupils hold that the colorless corpuscles so rapidly undergo disintegration), into a fine capillary tube in which the process of clotting can be watched under the microscope. At first, the entire tube is filled with corpuscles; but, before long, it is seen that the clot contracts, and there is a peripheral layer of serum squeezed out. In a short time, leucocytes can be seen emerging from the clot in numbers, either squeezed out or migrating from it. This experiment, which can be readily demonstrated, forms an admirable mode, as Schäfer showed some years ago, of studying the process of coagulation.

A study of the histogenesis of fibrin as seen in the moist chamber, in the capillary tube, and on the ordinary slide, affords, I think, no evidence in favor of the destruction of the colorless corpuscles, but, on the contrary, is directly opposed to this view. In a certain number of instances the aggregations of blood plaques, to the connection of which with the process of coagulation I shall shortly refer, have possibly been mistaken for colorless corpuscles.

The relation of the *red corpuscles* to coagulation is not regarded as very important; they play a more passive part. But Landois and others have described a process which can be readily seen in the blood of the frog and in mammalian blood, examined in serum. If we take the blood of the frog and examine it in the serum of the blood of the rabbit, it will be seen that the red corpuscles of the frog crowd into columns, and in a short time the hæmoglobin leaves the corpuscles, which become granular, and fibrin filaments form in their vicinity, and, according to Landois, the red corpuscles break down into a material which resembles granular fibrin very closely, indeed. These observations were made ten or eleven years ago by Landois, and they have been confirmed by others; but whether the corpuscles undergo transformation into the fibrin filaments, or whether fibrin only clots about these groups of corpuscles under the influence, perhaps, of a ferment which they extrude, it is impossible to say.

The relation of the *blood plaques* to coagulation is particularly interesting, and is, at present, attracting a great deal of attention.

In the study of fibrin formation, as seen under the microscope, it has long been noticed that the fibrin filaments spread out as distinct rays from the minute aggregations which have been known as Schultze's granular masses. Schultze noticed these, as did also Ranvier, in 1873, who regarded these masses as centres of coagulation. That the fibrin sets in a thick, dense network about the plaques is readily seen, but it can also be noticed, particularly if healthy blood is examined in which the plaques are not very numerous, that the fibrin also appears quite independently of the plaques. It forms as distinct little needle-shaped bodies presenting an appearance not unlike that of crystals. That these crystal-like portions of fibrin appear in regions of the field quite apart from the blood plaques, is well seen in studying the process of coagulation in the moist chamber. Although the fibrin needles when first formed may appear in portions of the field unoccupied by blood plaques, yet the network is usually most dense in their neighborhood, and when the entire field is covered with fibrin filaments, the disintegrated blood plaques look like centres from which the filaments radiate.

The relation of the blood plaques to coagulation, as examined experimentally, is even more interesting. If an ordinary ligature is passed through the femoral vein of a dog and allowed to remain for five or six minutes, or even less, the threads become coated with the plaques, as represented in Fig. 1. It is well to separate

Fig. 1.

Aggregation of plaques on a thread of cotton passed through femoral vein of dog and allowed to remain ten minutes.

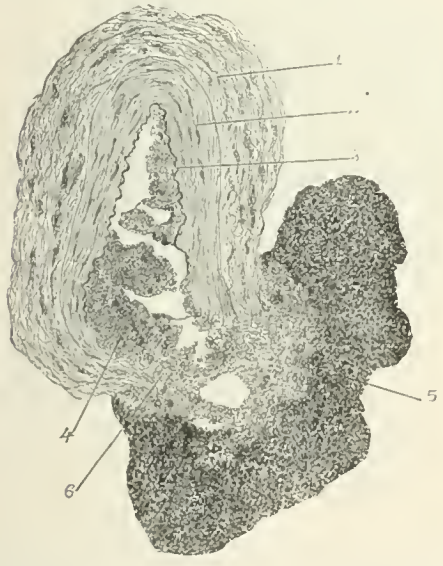
slightly the filaments of the thread, and if exposed to the blood stream for as long as ten minutes they become uniformly beset with the plaques. A few white corpuscles may be entangled among them, but undoubtedly the plaques are the first elements to aggregate about such a foreign body. The outlines are usually distinct, but if allowed to remain long in the vein those nearer the threads become more granular, and the distinct corpuscular nature is less evident. If a small brush of thread is tied to the end of pen-handle, or any suitable object, then whipped in the blood, as freshly drawn, for four or five minutes, and then examined, the brush of threads will have precisely the same appearance, and are uniformly covered with blood plaques. The colorless corpuscles are adherent here and there, but the blood plaques form the striking elements. They adhere to the filaments of the thread, and several of the finer

fibres of the thread may be entirely agglutinated by the aggregation of the blood plaques about them. I can fully confirm these original observations of Bizzozero and Hayem, and the experiments have now been repeated by a number of observers. If the threads, after having been whipped in the blood, are carefully washed in a saline solution, all the red corpuscles can be washed away, so that few, if any, can be seen, and then if these threads are dipped into a coagulable solution, clotting will occur. This experiment was performed by Bizzozero in 1882, and has been repeated by other observers. It has been urged against it that possibly the threads beating about in the blood have absorbed some of the fibrin ferment. This is, of course, possible, but certainly in such threads the chief elements to be seen are the blood plaques, and the leucocytes are very scanty; besides, the greater the number of the blood plaques adherent to the thread the denser the coagulum will be, as if the blood plaques furnished the material for the production of the fibrin or the ferment in large quantity.

Still more conclusive evidence of the participation of the blood plaques is their relation to thrombi, as experimentally produced.

The femoral artery of a dog is exposed and a linear slit made in the vessel, through which the animal is allowed to bleed to death. This portion of the vessel is rapidly excised and placed at once in alcohol, or, still better, first in osmic acid, and then sections carefully cut through the part where the incision was made, when such an appearance as seen in Fig. 2 will be found. Occupying

Fig. 2.



Section of femoral artery of dog at the site of longitudinal incision through which the animal bled to death. (Cut rather obliquely, low power.) 1, 2, 3. Adventitia, media, and elastic lamina of intima. 4. Aggregations of blood plaques in enormous numbers about the intima and the cut margins of the vessel. 5. Clot composed chiefly of red corpuscles. 6 ×. The cut end from which Fig. 3 was sketched.

the cut edges, and filling in places the lumen of the vessel a finely granular material is seen under a low power. Surrounding it, to the outside, as represented at 5 in the figure, there is a darker material made up largely of dark clots composed of red blood corpuscles. In the central portion, in immediate contact with the cut edges of the vessel, in contact with the elastic lamina of the intima, and occupying the interstices of the ragged surfaces, are the blood plaques. This was so stated by Bizzozero in 1882, and it has been confirmed in an elaborate investigation from the laboratory of Langhans,[1] in Berne. My own observations are in harmony with these, and we may say that the plaques are the elements which first settle on the edges of a wounded vessel and which form the basis of the thrombus.

Fig. 3 represents the end of a portion of the adventitia indicated by a cross (×) in Fig. 2. The sketch

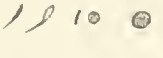
Fig. 3.

End of small portion of adventitia indicated at × in Fig. 2. The fibres are everywhere surrounded with granular disintegrating plaques.

shows the blood plaques in a condition of granular disintegration, but under a high power the outlines can be distinctly defined, and any one with a knowledge of these elements and of the changes they undergo has no difficulty in recognizing them. If the cut ends of the vessel are examined when fresh, in osmic acid or Pacini's fluid, the elements are still more clearly seen and are readily determined to be identical with those in the circulating blood and in the granule masses. The elaborate investigations of Eberth, published in the January number of Virchow's *Archives*, 1886, clearly demonstrate that the plaques are the first elements to settle and lodge on the lacerated portion of the vessel or on a portion of vessel destroyed by acid or by caustic.

The relation which the blood plaques bear to the so-called white thrombi is particularly interesting. Zahn[2] appeared to prove by his observations that white thrombi are composed exclusively of colorless corpuscles, and the current idea is that to a lacerated portion of a vessel the colorless corpuscles adhere and undergo disintegration, become granular, and form in this way a white

Fig. 4.



Plaques from thin clot on warty endocarditis.

thrombus. Bizzozero, Hayem, and Eberth have shown, I think pretty conclusively, that if a needle is passed across a vessel in the omentum or in the mesentery, so as to injure it, the first elements which are collected at the site of the injury are not the colorless corpuscles, or the red corpuscles, but the blood plaques, which form

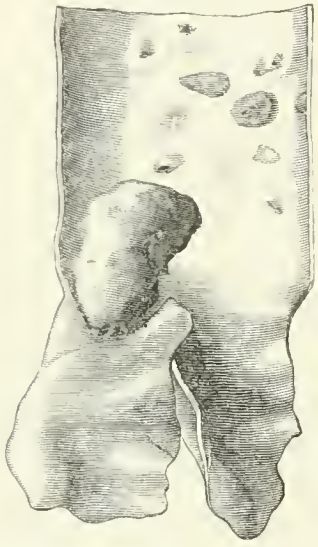
[1] Lubnitzky, Archiv. f. Exp. Path. u. Pharm., 1883.

[2] Virchow's Archiv, Bd. 62.

distinctly aggregated masses—white thrombi. There may be colorless corpuscles as well, but the chief bulk of the thrombus, which has formed at the site of the injury, is undoubtedly made up of blood plaques.

A study of white thrombi as met with in man leads us to the same conclusion. These structures have been long recognized, and have been supposed to be made up largely of colorless corpuscles. We find them on atheromatous ulcers, forming thrombi in the femoral veins, in the auricles and ventricles, on the valves in endocarditis and as the lining of aneurismal sacs. The examination of the superficial part of a white thrombus in osmic acid, Pacini's fluid, or even salt solution, reveals the fact that it is composed of blood plaques. In the peripheral part where they have not undergone disintegration, such thrombi are, so far as my observation goes, without exception, made up of small circular, disk-like elements which any one familiar with the blood plaques will readily recognize as such. Fig. 5 represents

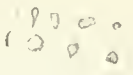
Fig. 5.



White thrombi composed almost entirely of blood plaques. Abdominal aorta. Woman dead of cancer of the stomach. From specimen in Museum of McGill Medical Faculty, Montreal.

two or three white thrombi in the aorta immediately above the bifurcation. The case was one of cancer of the stomach, and when the aorta was slit open these masses were seen looking as if a neoplasm from the retroperitoneal glands had perforated it. They were grayish-white in color, soft, and on examination were seen to be composed of the elements shown at Fig. 6. There

Fig. 6.



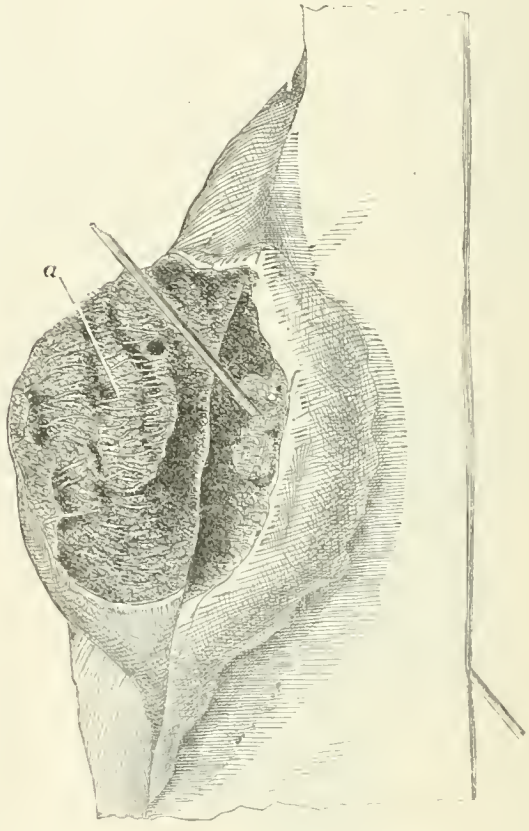
Plaques from specimens illustrated in Fig. 5.

could be no doubt as to their nature; they were blood plaques, presenting the circular appearance, and on profile, the narrow linear aspect of these bodies. This was the first specimen in which I was able to demonstrate that the white thrombi were made up of the blood plaques. Since then many specimens have fallen under my observation, particularly in connection with vegetations on the valves of the heart, the thrombi in aneurisms, and upon atheromatous ulcers. I would ask those specially interested in the question carefully to observe the white thrombi, more particularly the superficial parts of them in contact with the blood current. I think they will find that, without exception, they are composed not of colorless corpuscles, nor of a reticulated fibrin network, but almost exclusively of these plaques which, in the deeper parts, have undergone granular disintegration, but in the superficial parts still retain their normal shape and appearance.

The observation that these white thrombi consisted of blood plaques was confirmed in 1882, by Bizzozero, and, in the same year by Hayem, and since then it has been noted by a number of observers.

Fig. 7 represents a small aneurism of the thoracic aorta, which shows on its lining membrane a number of

Fig. 7.



Small aneurism of thoracic aorta, showing the internal wall of the sac covered with numerous curvilinear elevations, grayish-white in color, and composed of blood plaques. Specimen in Museum of McGill Medical Faculty, Montreal.

soft grayish-white curvilinear elevations, such as all observers have noted. On examination these will be found to be made up of elements similar to those which compose the white thrombi, namely, distinctly circular, disk-like blood plaques. The changes which these bodies undergo are very peculiar. As I mentioned in my first lecture, they appear in masses as soon as they

are withdrawn, and then undergo remarkable transformation, whereby they lose their outline and become converted into a granular material in which the individual plaques become unrecognizable. That change occurs in the blood plaques as they form these white thrombi. In the deeper portion of the thrombus, represented in Fig. 5, the blood plaques had disintegrated and become granular and were no longer distinctly recognizable; but at the superficial part they were distinct, their outlines were well marked, and in osmic acid, in teased preparations, distinctly made out and readily preserved.

Eberth's researches are of special value in this connection, and appear to place the experimental evidence of this important point on a firm basis, and explain the production of white thrombi. In the rapidly circulating blood, the central portion of the vessel is represented by a dark line in which you see no corpuscles whatever; nothing but a red streak, on either side of which there is the so-called still layer, with an occasional leucocyte. This represents the blood current in its active rapid condition. If the circulation becomes slower, then it is seen that, in addition to the leucocytes which collect in the still layer, the blood plaques appear; but in the rapidly circulating blood, as seen in the mesentery or the omentum of the guinea-pig or the rabbit, the still layer, the peripheral portion, contains no blood plaques, and only occasionally a leucocyte—in fact, the corpuscles are separated from the wall of the bloodvessel by a distinct tube of plasma.

Eberth brings forward these facts in explanation of the development of white thrombi. So long as the circulation is active the plaques remain central, and adhere neither to each other nor to the vessel wall; but when, from any cause, the current is slow, this natural disposition of the corpuscles is disturbed, and the plaques tend to collect at the periphery, and aggregate in groups at any point which has been injured, or which has been deprived of the endothelium. Slowing of the blood stream is then, on this view, one of the essentials in the formation of white thrombi, and this is entirely in accord with what we know of the pathology of these structures. It is not alone the presence of intact endothelium which prevents the formation of thrombi in the vessels, for we frequently find in aneurisms, on the heart valves, and on the aorta, denuded and rough regions upon which thrombi do not form. Indeed thrombi are not often found on atheromatous ulcers, which would offer the favorable localities for their formation if it is the epithelium alone which prevents it. The other condition would appear to be slowing of the blood stream, which has long been known to play such an important part, and the true significance of which is well seen in the light of these observations of Eberth.

What I contend is, that the white thrombi are composed chiefly of plaques, and that the colorless corpuscles play an altogether insignificant part in their formation, and the experimental evidence which has been offered is borne out completely by a study of morbid anatomy.

The further development of the thrombus results from the disintegration of the plaques, and the formation of a finely granular material in which there may be no fibrin filaments. We must recognize a granular or stroma fibrin, as Landois call it, and a fibrillar or plasma fibrin. The former is a granular material which develops when cells undergo the peculiar metamorphosis described by Weigert as coagulation-necrosis, and it is this in reality which goes on in the white thrombi. There may be no trace of fibrin filaments, but the chief mass is made up of a granular matrix in which the outlines of the plaques are no longer visible. The stages of this transformation I have traced in thrombi of the femoral vein, and it is well seen in passing from the superficial parts to the deeper parts. The plaques on the surface of a white thrombus, as at Fig. 5, may be intact, or they may show signs of disintegration and conversion into a granular débris. The central softening of a white thrombus results from the liquefaction of the plaques, and is a result possibly of the presence of fluid in greater abundance than is necessary for the process of coagulation-necrosis. Quite recently in a case of typhoid fever, I had an opportunity of studying the histological characters in thrombi in the femoral veins. In both they were mural, and had originated behind the valves. The attached portion was a light brown-red color, but the upper half was of a dead-white color, and the extension into the iliac was of the same character. The line of demarcation between the two parts was pretty clearly defined. At the thickest portion the superficial white thrombus had softened to an opaque milky liquid, but at the prolongation it was firm and consistent. A few colored and colorless corpuscles were scattered through the white thrombus, but the great mass of it was composed of blood plaques, and a study of the softened milky region showed clearly that the granular detritus was composed of the altered plaques. In the deeper parts the plaques became less and less distinct, until a point was reached at which the individual cells were no longer visible, and there was nothing but an indifferent matrix. The contrast in color between the outer and inner portions indicated a difference in age, possibly in mode of formation, though in the outer portion of the brown and the inner part of the white, close to the line of demarcation, the structure seemed identical.

In the light of these new observations on the connection of the blood plaques with thrombi, the entire question may be restudied with advantage, particularly the relation of the white and mixed thrombi, and the mode of formation of the clot in aneurisms. Of the truth of the statements here made regarding the connection of the plaques with thrombosis, I feel assured from careful observation on the structure of the white thrombi, (1) on atheromatous ulcers, (2) on the valves of the heart, (3) in aneurisms, and (4) in thrombi of the veins. I have not lately had an opportunity of examining a "globular vegetation" of an auricle or ventricle, but I venture to state that they are composed originally of similar structures.

ORIGINAL ARTICLES.

THE ANALGESIC ACTION OF THEINE.[1]

By THOMAS J. MAYS, M.D.,
of Philadelphia.

Nearly a year ago I essayed to investigate the physiological action of theine, caffeine, and guaranine, principally in relation to the nervous system,

[1] Read before the College of Physicians of Phila., April 7, 1886.

and from the experimental results which I then derived, and which were published in *The Therapeutic Gazette* for September, 1885, I was led to believe that, while all these agents had a decided affinity for the nervous system of the frog, caffeine chiefly affected motion, and theine and guaranine mainly influenced sensation. I carried this principle of the action of theine into practice, and found that this theoretical deduction was verified by its power of promptly relieving painful affections of the human body.

These clinical observations on theine appeared in The Medical News for December 12, 1885. At that time I was under the blissful impression that these alkaloids were manufactured separately from tea, coffee, and guarana, but soon found that this delusive charm was only a snare—that they were neither the one thing nor the other, but that they were made indiscriminately from Chinese tea, Paraguay tea, kola-nut, coffee, or guarana; and were labelled promiscuously to accommodate the demands of the trade. This singular state of affairs has brought about a remarkable complication in the market. The great bulk of what is supposed to be caffeine, is not caffeine at all, but theine; since under all ordinary circumstances it is much cheaper for the manufacturer to work with tea, than with any of the other raw materials.

On this subject, Dr. Charles Rice, than whom there is no better authority, in an editorial in the March number of the *American Druggist*, says:

"We have reason to believe that neither theine nor caffeine is manufactured in this country, but all that is sold is imported from abroad. . . . We translate the following passage from Von Gehe & Co.'s *Handelsberichte:* 'Although *caffeine* is in fair demand, and still remains at its comparatively low figure, an advance is to be expected because the proper crude material for its preparation, namely, the *cheaper grades of tea*, have been for some time unobtainable.' . . . From this it appears that cheap tea leaves are the principal source of caffeine, and, therefore, also of theine.

"We are, moreover, assured by the house of E. Merck, of Darmstadt, that in view of the heretofore acknowledged and undoubted identity of caffeine and theine, manufacturers consider themselves at liberty to choose whichever crude material happens to be cheapest in the market. A lot of coffee, damaged by water or otherwise, would probably sometimes form a cheaper source than tea leaves. Usually, however, the latter are used as the source."

The opinion of Dr. Rice, that no theine or caffeine is manufactured in this country, I can confirm so far as this city is concerned; for inquiry among the principal dealers and manufacturers of drugs has failed to reveal any who did not import these alkaloids.

In all fairness it must be admitted, however, that the manufacturers were justified in producing and mixing these drugs promiscuously, since they are taught that they are identical both in chemical constitution and in therapeutic action, and if this is true, no earthly reason can exist for their separate manufacture. But it is very evident, that for the purpose of inquiring into the truthfulness of their supposed identity, it is idle to test them in a state of combination; hence, in so far as my former experiments are to indicate any differential action between these agents they are valueless. There can, however, be no doubt that what I used under the name of theine was principally or wholly theine, but the nature of the substance which I regarded as caffeine is more uncertain, yet it must have contained something besides theine, or else I could not have obtained dissimilar results from the two substances. In this connection I would also state that neither the theine nor caffeine which I then used came directly from Merck, as I had supposed at the time, and erroneously stated in my first article.

In view of this chaotic condition of things, I determined to review all my previous work, so far as it related to theine and caffeine, and my thanks are due to Mr. William Harris, with the firm of Messrs. Henry C. Blair's Sons, for isolating these alkaloids from tea and coffee respectively, and for thus enabling me to test each one in its separate state. I have thoroughly gone over my former ground, and have found ample proof to substantiate my previous investigation in most essential points, and even have found reason to believe that the difference between the action of the two in regard to sensation is greater than my earlier experiments indicated.

Since tea and coffee are believed to be very different in their gross effects on the human body, there is no obvious reason why their alkaloids should be considered identical in their action, unless, after being shown that they are chemically alike, the assumption, of course, naturally follows that they are alike in their physiological action. This idea has also been encouraged by experimental physiologists, among whom are Aubert, Albers, Amory, Bennett, McKendrick, Burnett, and others, although Leven, who, as early as 1868, experimented with the separated alkaloids, which it does not appear the other above mentioned experimenters did, found that theine produced convulsions in frogs, while caffeine did not. This fact my experiments confirm, and must be regarded as an important indication as to the manner of their action.

A detailed account of my experiments just completed will not be given here, since they would swell this paper to inordinate dimensions; but their condensed results, which appear below, show that, while the actions of theine and caffeine agree in many respects, they also disagree in some important particulars. They both first affect the anterior extremities of frogs, and both diminish respiration and cause hyperæsthesia during the latter stage of the poisoning process, although the supersensitiveness is much more marked in theine than in caffeine. They differ in the following respects: Theine principally affects sensation, while caffeine principally influences motion; theine produces spontaneous spasm and convulsions, while caffeine does not; theine generally produces muscular relaxation in the posterior extremities, while caffeine produces muscular rigidity in the same; theine impairs the nasal reflex early in the poisoning process, while caffeine does not, if at all, until in the very last stage.

It may be remarked here that since winter frogs, which are not so irritable as summer frogs, were used in my last experiments, these results, so far as the induction of hyperæsthesia is concerned, may be modified to some degree; but so far as sensation is concerned, which is the main point of interest here, I am confident that the distinction made above between the action of theine and caffeine rests upon a fundamental basis. It would be erroneous, however, to suppose that the action of theine is strictly and exclusively limited to the sensory nerves, and that of caffeine limited in the same way to the motor nerves, for both my former and later experiments teach that these are merely their strong characteristics, although one may supplant the action of the other in a minimum degree.

On man, theine can only be considered a poison in large doses. Frerichs, Lehmann, Husemann, and others drank it, and found that in doses of from one-fourth to one-half of a decigramme, it produced "frequency of the pulse, irritation of the bladder, cerebral excitement, slight hallucinations, and lastly a desire to sleep." Dr. C. H. Castle, of Cincinnati, Ohio, was induced to test the action of theine by the appearance of my article in The Medical News. The results of his experiments, which were both physiological and clinical, were read before the Cincinnati Medical Society, and published in *The Cincinnati Lancet-Clinic* for February 6, 1886, and since they were made with pure theine, extracted by his own chemist, and because they add some hitherto unobserved features of the drug, they are very interesting and instructive He made, in all, three experiments upon himself, and of these he says:

"The first time I injected one-sixth of a grain into my left forearm, immediately below the flexure of the elbow-joint. I will not weary you with the details of the observations, as made at intervals of a few minutes. The noticeable effect was remarkably rapid. An angry blush and swelling spread from the point of injection, but what looked like a most delicately tender spot was singularly devoid of sensation. It was not, nor did it become, totally anæsthetic, but, in what appeared to be an inflamed area, sensibility was markedly dulled. Presently a numbness such as we feel when a member is beginning to 'go to sleep,' from pressure upon its supplying nerves, stole over my wrist and hand. Little tinglings, scarcely noticeable had not one been on the watch for strange manifestations, came and went in various places. At no time was mobility impaired. The temperature of the left hand, and I beg to call your attention to this point, was markedly lowered. The effects of the injection lasted about two hours.

"The second injection was made under somewhat different circumstances. I had rather severely bruised my right hand, and the pain on pressure over the metacarpal bone was quite severe. I therefore injected one-third grain of theine subcutaneously, over the ulnar nerve just below the elbow.

"The same phenomena were noticed as in the first use of the alkaloid—sensibility around the injection was markedly diminished, lower down the forearm and in the wrist and hand less markedly so; the right hand lost as much in temperature as had the left hand previously, but I am compelled to say that I was disappointed in the analgesic effect that I had expected. The extreme sensibility was dulled, to be sure, and my hand no longer hurt when I put it into my overcoat pocket, as it had before, but any deep pressure instantly informed me that the nerves about the joint still resented the impact of a foreign body with the surface.

"The third observation was made again upon the left arm; this time one-half of a grain was used, and though an accident perhaps somewhat marred the experiment, some points were brought out more prominently. The injection, made for me by a friend, was a deep one—intermuscular—and the withdrawal of the needle was followed by a slight hemorrhage, sufficient to raise a conical subcutaneous tumor of a diameter of a one cent piece. Instantly there was a deep-seated pain, probably due, I thought, to extravasation from the wounded vessel into the intermuscular planes. Full extension was impossible, partial extension very painful, the painful seats being deeply under the point of injection and the dorsal aspect of the metacarpo-phalangeal joints.

"As in former observations, sensibility was affected almost immediately, and in three minutes the left hand was blanched and almost cold to the touch. My pulse was always full, strong, and but slightly more frequent than normal. Very soon peculiar constitutional disturbances appeared, and not entirely like those described in the standard works on materia medica. I was excited and talkative, and so rapidly did I talk, that I would soon exhaust a subject broached by others, and endeavor to introduce some natural descendant of the idea as a topic of conversation, apparently so far ahead of its proper sequence in a well ordered-train of thought, as to appear like an interruption with an irrelevant subject. Failing to gain a hearing, as I frequently did, I would indulge in snatches of song or broken ejaculations which had a world of meaning in them then, but which, as I look back upon them now, seem utterly absurd.

"Alternating with states of great bodily activity were spells almost of a fainting character. These were seven or eight in number, and beginning soon after the injection, gradually ceased after the lapse of six or seven hours."

Dr. Castle gives a very good description of the theine effects as he observed them on himself, and I would say that the only way in which I can account for the decided cerebral intoxication in his last instance, is on the score that unfortunately the deep injection which he practised chanced to introduce the theine into a bloodvessel, and it was at once carried to the brain and produced the hallucinations as described. This is all the more probable because the central disturbance manifested itself very soon after the injection, which, ordinarily, should not have appeared until in a later stage of the poisoning process. The dose which he used, I should now, after considerable experience with the drug, call a moderate one—for I frequently inject from three to four times as much as he did—not deep, however—and I have yet to observe the first untoward constitutional effect.

The physiological effects of theine as brought out in a number of individuals, under my own observation, may be summed up as follows: Dose, one-third of a grain. Numbness of arm and hand below seat of injection, "a feeling as if the hand had been steeped in a solution of carbolic acid," as one of the subjects of experimentation expressed it. A feeling of coldness and an occasional disturbance of the temperature in the member under its influence. A slight reduction in the pulse-rate, and no intoxication of the brain. No impairment of motion. The anæsthesia comes on in a very few minutes after the

injection, and was much more marked in some individuals than in others. The temperature disturbance was not regular. Out of four cases in which the temperature was taken, it showed no difference in one, and in another one the uninjected hand was slightly higher (0.4° Fahr.) in temperature than the injected one. In two there was quite a marked fall in temperature—one 0.8° Fahr. and the other 1.2° Fahr. lower in the hand of the injected arm than in that of the uninjected one. And strange to say, the hand which showed the greatest depression in temperature, experienced the least anæsthesia. A certain feeling of coldness always accompanies the numbness of theine, yet, in my earlier observations I failed to detect any difference with the thermometer. Dr. Castle was the first to notice this feature, and I can quite agree with him, that if the lowering of the temperature is constant after its injection, this will add materially to the clinical worth of the remedy.[1]

It is evident now, I think, that experimentation points out that in theine we have an agent which has the power of paralyzing sensation without affecting motion, with a great degree of accuracy, and this with no appreciable injury to the part which is influenced. It now remains with clinical medicine to decide how far this property can be utilized in practice. Evidence from various sources will, however, be offered here, which seems to show that it has already demonstrated its fitness to fill a most useful position in the treatment of pain. The following cases, the sources of which will be indicated during their relation, have all been gathered from different medical practitioners who took sufficient interest in this drug to test its action, and who were kind enough to transmit their reports to me; and I desire to thank these gentlemen for the scientific and liberal spirit which they evinced in undertaking to investigate a hitherto untried remedy. Both the successful cases and the failures will be given, in order to form an intelligent verdict in regard to its proper place in the treatment of pain.

The first series of cases were reported by Dr. H. C. Fegley, of Ashland, Penna., who writes:

"Since your article on the action of theine was published, I have had the opportunity of testing its analgesic effects in three very aggravated cases of sciatica. In two cases complete recovery, with the exception of slight stiffness of the leg in one, took place. The third was an aggravated case of three years' standing, and although not cured, was so much benefited that she is able to attend to her household duties."

Case I.—S., December 20, 1885, had been unable to leave her chair, in which I found her, for two weeks, the least movement causing the utmost agony in the whole left leg. When perfectly quiet no pain was felt except occasional sharp twinges shooting down to the foot. I put her to bed and injected a quarter of a grain of Merck's theine into the thigh, about the seat of greatest pain. The injections caused intense burning, which lasted about three minutes, when she said it had left her and that movement in her limb caused less pain. The following evening I injected half a grain, and repeated the dose a day after, when she felt, as she expressed it, entirely cured.

Case II.—H., January 10, 1886, complained of intense deep-seated pain in the leg, which had been coming on gradually for nearly a week. She never had sciatica before, and two injections of three-quarters of a grain each relieved her entirely.

Case III.—Mrs. A. has been a sufferer for nearly three years, and has tried a great many remedies with little or no benefit. Theine in doses of a fifth of a grain relieved her only for three or four hours, but three-quarter grain doses gave her a full night's rest. The intense sciatic pain, she says, has passed away, but there are still some soreness and considerable stiffness in the limb.

I found that the dose you first suggested to me was inadequate, so I first tried one-fourth, then one-half, and finally three-fourths of a grain, and am quite well pleased with it. I have only had an opportunity of testing the drug in the three cases just cited, but am inclined to believe it to be a true analgesic in aggravated forms of neuralgia.

Reported by Dr. H. Woddrop, of Loag, Pennsylvania.

Case IV.—M., married, aged forty, was found last December 4th, with considerable pain, of intermittent character, in left leg. For a month previous he had been suffering with occasional twitches of pain, and was now confined to his couch. He also had stiffness as well as œdema in his other limb. He was treated with morphia (*per orem* and subcutaneously), muriate of ammonia, quinine, iron, strychnine, and arsenic until the last of December, when the swelling had entirely disappeared, but there were considerable pain and stiffness left in the limbs. About this time I saw your article on theine, procured some, and injected one-fifth of a grain deep into the calf of the left leg. This caused some pain, and succeeding symptoms were very near your description. Continued internal treatment and subcutaneous injection of theine occasionally. On January 19th changed internal treatment to small doses of phosphorus, beef peptonoids, and milk. On January 23d could move his limbs freely, had no pain, and appeared, excepting debility, a well man. He received in all twenty-four injections, sometimes twice a day. I attribute his recovery in great part to theine, but the constitutional treatment was also very important. I have no doubt that by the use of theine I shortened the case materially. The burning which was occasioned by the injection lasted about fifteen minutes, after which pain in the limbs ceased. The pain returned at varying periods, not as severe after the injections as before, and it always subsided directly after the use of the theine. I believe theine to be a perfect analgesic, and have noticed no narcotic effects from its employment.

Case V.—Mrs. T., age between sixty-five and seventy years, a rather fleshy lady, complained of dyspnœa, excessive weakness; heart's action was muffled—the two sounds running into each other. Also had severe pain along the course of the right sciatic nerve. Injected theine over right sacral region, and left the syringe and solution of theine in charge of an intelligent lady, with instructions to use it immediately on return of pain. Also prescribed digitalis, ferri sulph. exsiccatus, and quinia. At my next visit I found the heart sounds and breathing normal, and sciatica gone. She had received, in all, three injections of theine.

Case VI.—This was a case of rheumatic gout in which I used theine for the purpose of obtunding sensibility,

[1] After this paper was written, I learned from Dr. L. Wolff, of this city, that Dr. A. Eulenberg, in his "Hypodermatische Injection der Arzeneimittel," describes the analgesic action of caffeine when administered subcutaneously. On referring to the work, I found that this eminent author had used caffeine for the relief of pain in three cases—two of cephalalgia, and another of occipital pain—and, although he was unsuccessful in relieving the pain, at least permanently, he observed that caffeine produced a local anæsthesia at and in the vicinity of the injection.

and it certainly appeared to have considerable influence upon the pain, but, of course, we could not expect any more in this case from it.

To case first I gave your article to read, and he said that his symptoms of numbness, etc., corresponded with those which you describe. The second and third cases, besides the burning incidental to the injection, experienced nothing more than the relief of pain.

Reported by Dr. George S. Gove, of Whitefield, N. H.

Case VII.—Injury to the hip-joint of one and a half year's standing. The theine was used at first in small and afterward in large doses without any benefit, either alone or combined with morphine and atropine. Nor had morphine or atropine, combined or alone, any influence on the pain.

Case VIII.—Patient aged forty-five, employed in a creamery. Has had rheumatism. Brought on a pain in his back by lifting a heavy milk can. Worked all that day, had a restless night following; next day was quite lame and stiff, worked that day but was used up by night-time. The following night of the second day he had very little sleep on account of the severe pain. Liniments and hot fomentations were applied without effect. When I saw him next morning the pain was so great that in trying to dress himself he fainted and fell to the floor. I gave him one-half grain of theine hypodermatically, about ten inches above the hip-joint, and waited half an hour without affording much relief. I then gave him another half grain injection and the pain lessened. After a short time the pain entirely disappeared and has not returned since.

Dr. William Hall, of Conshohocken, Pa., reports:

Case IX.—I have used theine in three cases, two of cervicobrachial and one of intercostal neuralgia. The case of intercostal and one of cervicobrachial neuralgia were entirely relieved. In the other case theine failed, as did all other remedies. This last case is a woman whose father died of, and whose sister is suffering from, a similar form of pain. I am well pleased with the remedy in a fair case.

Dr. G. D. Bennett, of Newton, Kansas, reports:

Case X.—In regard to my patient treated with theine, I would say that Mr. G. fell from his wagon in the early part of November, 1885, and dislocated his shoulder downward into the axilla, and also injured the brachial plexus of nerves in the fall. The latter was followed by some neuralgic pain, which grew to such severity that one-half grain doses of morphia gave him but partial relief. Some six weeks after receiving the injury and when the pain in the shoulder was steadily growing worse, I commenced using theine hypodermatically by injecting one-third of a grain in the morning. The result of the first injection was some redness and pain at seat of injection, and in fifteen minutes numbness of finger-ends appeared, which gave way in half an hour to a condition explained by the patient as "arm being asleep." In a short time, probably forty minutes, pain in shoulder all gone. Next day visited patient and found return of pain, but not so severe as before, and again injected one-third of a grain, which relieved him to such an extent that he had a comfortable day and an easy night. This treatment for the next twenty days was combined with tonics, at the end of which time my patient had complete use of his arm and no pain. I feel that we now have a remedy which is certainly far superior, at least was in this case, to morphine and cocaine, for they both had been tried thoroughly.

Dr. C. H. Castle, in the article to which reference has already been made, relates four cases of pain treated with theine as follows:

Case XI.—The patient was the subject of those ill-defined, dragging musculo-rheumatic pains of the extremities, found not infrequently in such a damp climate as is ours. About one year ago he had obtained marked relief from an electric bath, taken in Chicago, and at the time I encountered him he was on a search for a similar electropathic institution in Cincinnati. I persuaded him to allow me to use one-sixth of a grain of theine upon him hypodermatically. The pain was severe in the anterior muscular masses of both thighs and in the calves of both legs. I made the injection slightly below the popliteal space and toward the inner side of the leg. The effect was striking, and almost instantaneous. The point of injection, though angry-looking, was quite anæsthetic, and as little tinglings shot down the leg toward the foot, the pain vanished and the analgesia of the injected leg was in marked contrast to the pain in the thigh of the same extremity, and the thigh and leg of the opposite extremity. This beneficial effect was maintained for four days, at which time I last saw the patient, and I exceedingly regret that we have neither of us since had the time or opportunity to relieve the still suffering fragments of his body of their aches.

The other case I will give from the notes taken by the attendant physician:

Case XII.—Myalgia of the deltoid muscle. Pain severe. Had had one-quarter grain of morphia every two hours the night before without bringing sleep. Could not raise arm.

9 P.M. One-sixth grain of theine subcutaneously about the anterior margin of the trapezius, just above the shoulder. Pulse 102.

9.04. Very little pain, unless she moved her arm. Still marked tenderness on pressure.

9.05. Pulse 96. Diminished sensibility about seat of injection.

9.10. Seat of pain seemed to be only in lower half of its former area.

9.13. Numb feeling in arm as far down as elbow. Very little pain on moving arm.

9.15. Can now bear pressure over former exquisitely tender spot.

9.20. Pulse 96. Only tenderness is now over acromion. No pain at all on pressure over an erior part of arm.

9.30. Numbness not so marked. Says if only had as much pain as she now has she could easily bear it.

9.37. Pain now only about insertion.

9.40. Numbness in arm diminishing, but pain not increasing. Says she could go to sleep.

11. Pain has returned, but in a much less degree. Needs no morphia.

Since then has not complained.

Case XIII.—Neuralgia of the sciatic nerve. Chloroform, ether, etc., had failed as curative remedies, or even to relieve pain. Temporary relief was being sought with morphia.

4.05 P.M. Injected one-third grain of theine over the course of the sciatic nerve near its emergence from the pelvis.

4.10. Feels easier below the seat of injection. Still tenderness on pressure over the nerve.

4.20. Still somewhat better.

4.25. Jerking sensation when walking, no pain while lying in bed.

4.35. Tingling sensation in heel, walks much better.

5. Numbness from knee down to foot; warm flashes.

5.30. Same feeling as at 5 P.M., with pain in hip.

Pain not so severe in hip; numbness from knee down.

6.30. Complains of foot feeling very cold. It communicates this sensation to the hand.

7. No pain, but still a sensation of cold. Hot sand bags applied.

Next morning pain had returned.

Case XIV.—In this case there was absolutely no benefit derived whatever. The pain was not at all relieved.

It would be highly satisfactory if the nature of this last case of pain had been given by the author. In the absence of these important data, it is, of course, useless to speculate on the probable cause of its failure to act.

Dr. Washington H. Baker, of Philadelphia, reports the following cases:

Case XV.—L. N. W., aged thirty-six, consulted me December 13, 1885, on account of a pain in his left hip, from which he had suffered for eight months. Never had any disease of the genitalia. Has not had chills and fever, nor rheumatism. Had an attack of typhoid fever thirteen years ago, and been well ever since until the present trouble appeared. The greatest pain complained of is in the left hip a little above the trochanter major, the pain also radiates around in front and down back of thigh. The pain does not extend below the knee at present. Some time ago the pain extended to ankle. Tongue clean. Bowels regular. Appetite good. Is compelled to use a cane and limps when walking.

Dec. 16. Gave a subcutaneous injection of twenty minims of a two per cent. solution of theine. He felt better at once and could stand straighter. In a few minutes had a tingling sensation in thigh. Can walk more erect and with less pain. The thigh feels numb when touched, the leg less so. Half an hour after the injection the thigh still felt numb, but he could not walk quite so well. Was given five grains of iodide of potassium thrice daily. The injection was made about three inches above the seat of pain.

17th. Injected twenty minims of theine. Helped him somewhat, but not a great deal. Applied a thapsia plaster to thigh.

18th. Tells me he had less pain since yesterday, than since he had the disease. Injected twenty-five minims of theine.

19th. Walked down to office this morning, a distance of twenty squares. Is feeling much better. Injected thirty minims.

20th. Feels about the same as yesterday. Little or no pain. Injected thirty minims.

21st. Feels better than he has yet, less pain than yesterday. Injected twenty-five minims.

24th. Yesterday morning the pain returned in the limb. Last night it was as bad as ever. Injected twenty minims, and after three minutes the pain began to grow less.

25th. Still considerable pain. Injected twenty-five minims.

26th. Had severe pain last night. Injected twenty-five minims.

28th. Still considerable pain. I gave a pill of sulphate of cinchona, ext. nux vomica, ext. belladonna, and pil. ferri carb.

Jan. 6. Feels better. Injected twenty-five minims of theine.

30th. Walked into office to-day, erect, very little pain complained of and a slight limp. Considers himself cured.

Case XVI.—J. B. came to me in December, 1885, complaining of a severe pain in lumbar region which almost incapacitated him for work. Injected twenty-five minims of a two per cent. solution of theine in lumbar region above the painful part. He was relieved at once and has not been troubled with it since.

Case XVII.—J. R. W., aged thirty years, brakeman, suffered from a pain in the lumbar region which troubled him particularly when he bent over to wash his hands. I injected twelve minims of a two per cent. solution of theine under the skin above the painful spot with immediate and entire relief of pain. It was really ludicrous to see the astonished expression on his countenance and the contortions he went through to assure himself that he was in truth relieved. I also gave him two and a half grains of iodide of potash thrice daily.

Dec. 22. Injected twenty-five minims of theine, as there was a suspicion of pain in the back. This visit was one week after the first.

Jan. 12, 1886, reports no trouble with his back.

Case XVIII.—March 8, 1886, a gentleman, fifty-eight years old, told me that he had been suffering for several weeks with a pain in the left shoulder. He supposed it was rheumatism. He had been kept awake the greater part of the last three nights on account of the pain. The pain was getting worse from day to day. I injected twenty-five minims of a two per cent. solution into the shoulder with immediate relief. That night he slept comfortably, and has not had any pain in shoulder up to date (March 20, 1886). After the injection a burning, tingling sensation was complained of at site of injection. The theine had no appreciable effect on the mental faculties.

Case XIX.—March 20, 1886, a patient complained greatly of a bunion on right foot. The pressure of the shoe in walking caused considerable suffering and a slight limp. Fifteen minims of a two per cent. solution of theine were injected about three inches above inner malleolus. Four minutes after injection the bunion could be roughly stroked and pinched without discomfort. The shoe was put on, and walking caused no pain whatever.

Dr. J. H. S. writes from Bolivar, N. Y., under date of December 21, 1885, about his own case as follows:

Case XX.—"Dear Sir: I have just this day read your article on the 'Therapeutic Action of Theine,' and would say that my own case is almost a *fac simile* of your case, Mrs. A. A. (which was a case of sciatica). I have tried every remedy I could think of, but have found nothing to give relief but injections of morphine. I had to give up the morphine on account of the constitutional effect which it brought on. My trouble was caused by being thrown from my cutter about a year ago, but had no severe pain until last August, when I became a subject of severe blood-poisoning contracted during an operation, and from which time the pain in my limb began to be terrible. I went to the springs and continued treatment for the poison. I feel so badly now that I find it impossible to write you in full. If you will be kind enough to send me some theine, with full instructions how to use it, I will test it and have my case carefully reported to you. I would further say that I returned from the springs about three weeks ago, but received no benefit. I am now and have been in bed for the past ten days; and I only hope this new remedy will give me some relief from the most terrible pain possible to endure."

Under date of March 22, 1886, Dr. S. states:

"In relation to the theine, I will say that it has done its work for me. The first injection was made on December 25th, one-third of a grain in the morning, and one-third of a grain more in the evening. Then I followed this up with daily two-third grain doses for six days,

then two doses of the same amount for the next three days, then two doses in five days, and the last one in six days afterward. After this I was free from pain. My leg, which was three inches smaller than the opposite one, is now about its natural size. I am a thousand times your debtor for the theine you sent me, for I have full confidence that it gave me relief, and, so far as my sciatica is concerned, it made a cure without any bad effects.

Case XXI.—I have tried theine in two other cases, but was not able to watch the effects as I would have done had I been in condition, but can say one was a strong man with rheumatism of the left arm. I gave him two injections of two-thirds grain each, which relieved his pain.

Case XXII.—The other was a man of about fifty years old, with sciatica, which had troubled him for years. I gave him two-third grain doses once a day for three days, which gave him incomplete relief. I then gave him a grain a day for two days, and this gave him entire relief. I will say, however, that this case I have not seen since I gave him the last injection.

Since the appearance of my last article on this subject in The Medical News, I have treated quite a number of cases of pain with theine, of some of which I beg leave to give a condensed report in this connection.

Case XXIII.—Mrs. B., aged thirty, was entirely relieved of intercostal neuralgia, accompanied by a peculiar constant burning pain in the left interscapular space, by one injection, which was given over painful spot along left side of spine.

Case XXIV.—Dec. 5, 1885. V., chronic rheumatic pain of left shoulder-joint and whole arm. Pain very severe. No relief rendered previously by salicylates, muriate of ammonia, iron, quinia, or iodide of potash. One-half grain of theine relieved the pain at once and made him feel comfortable.

Case XXV.—Dec. 17, 1885. Mrs. W., aged fifty, suffered from cervicobrachial neuralgia on right side since the previous August. Two injections of half a grain each, a week apart, were sufficient to relieve the pain.

Case XXVI.—Dec. 29, 1885. M. C., aged forty-seven. Pain in and inability to move left arm for three weeks. Unable to lie on left side. Could not dress himself without aid. Pressure along the region of the left brachial plexus greatly intensified the pain along the shoulder and the arm. Injected half a grain over seat of pain along left side of spine, and in less than five minutes he was able to lift his arm to his head, to swing it to his back, and, very much to his surprise, to dress himself—something which he had not been able to do for three weeks. He said he was entirely relieved. Have not seen him since.

Case XXVII.—January 7, 1886. Case of double sciatica of fourteen years' duration. Theine injections relieve the pain, but are powerless to cure the degeneration which has probably taken place in the nerves.

Case XXVIII.—January 12, 1886. Sciatica in left leg relieved by two injections.

Case XXIX.—January 12, 1886. K., aged forty-five. Burning pain in right interscapular region, which was entirely relieved by one injection over the seat of pain.

Case XXX.—February 9, 1886. H. was cured of a brachial neuralgia by one injection.

Case XXXI.—February 18, 1886. Pain in the lumbosacral region; also complains of pain in left brachial plexus. Gave him two injections—one over the former and the other over the latter seat of pain, and he has not complained since.

Case XXXII.—December 16, 1885. Severe case of sciatica, of two weeks' duration, was relieved by seven injections.

Case XXXIII.—February 18, 1886. Intercostal pain aggravated by pressure along left side of spine in upper dorsal region. One injection over latter place cured him.

Case XXXIV.—February 3, 1886. W. This was a most aggravated case of neuralgia of both lumbosacral and left cervicobrachial plexuses, associated with irritability of the spine along its whole course. The pain had been coming on for two months or more. It was intermittent, very intense, and accompanied by muscular contractions of both legs below the knee and left forearm. It was impossible for patient to stand erect when he suffered from the pain—in fact, he was confined to his bed most of the time. Four injections, of one-sixth grain each, in the evening, made him comfortable during the night and next day until evening, which, with other remedies, like iodide of potassium, iron, muriate of ammonia, and quinia, have been kept up for nearly three weeks; and now the patient is in a good condition, able to walk twenty-five squares in one stretch, and only requires an occasional injection. The injections were all made on each side of the spine, in the interscapular and lumbo-sacral region, and never failed to give him instantaneous relief, no matter how bad the pain was at the time.

Case XXXV.—M., æt. twenty. Carbuncle in posterior part of right thigh, from the pain of which she suffered intensely. Injected one-third grain of theine about three or four inches above the seat of pain, and she became easy from that time on until it was lanced. She is accustomed to the pain of carbuncles, and says that the injection gave her immediate relief.

I might multiply these cases, for I have treated a number more in the same way, but I presume that what has already been given, especially the history of those cases given before my own, is sufficient to show that theine is of considerable clinical value. In addition to the theine treatment, I will say, that all my aggravated neuralgiæ had received iron, quinia, ammonia, iodide of potash, and arsenic. For it must be remembered that the function of theine is solely that of pain-relieving, the intimate nature of which is not understood; and while it performs this office to perfect satisfaction, it also fails to give permanent relief to obstinate and protracted cases of pain unless it is combined with remedies which assist in changing the nutritive state of the affected nerves.

The question now arises, Is theine an analgesic in all kinds of pain? This is best answered by referring to its physiological action. I think my experiments on frogs demonstrate that while it reduces sensation when locally applied, its chief characteristic action begins at the spinal cord and spreads thence to the periphery of the nerves. Hence it is indicated in all pain of central, especially of spinal origin, as in that of the different forms of neuralgia, of neurasthenia, of locomotor ataxia, of ischæmia of the spinal cord, and of spinal irritation. I have also seen it act very well in lumbago. But pain depending upon peripheral irritation, such as that caused by an injury to the surface of the body; or that caused by a carious tooth, etc., is more successfully treated by the surface or subcutaneous application of cocaine.

The action of cocaine is, in many respects, the inverse of that of theine. It does not, like theine, produce anæsthesia of the skin or mucous membrane by affecting the trunk of the nerve and thence all its terminal filaments, but by coming in direct contact

with the endings of these filaments. It is for this reason that cocaine has failed as an analgesic in neuralgia. I do not wish to assert that cocaine is incapable of affecting the nerve trunk in the same way as theine does if it were injected deep enough to bring it in direct contact and then confined there, or, at least, below the seat of injection, by constricting the circulation of the limb, as has lately been suggested by Dr. Corning, of New York; but when cocaine is injected subcutaneously in the ordinary way its transient anæsthesia will be limited chiefly to a small circumscribed area at the seat of injection, and will not affect the nerve trunk beneath.

This distinction is important, for it shows that theine, while it is a local anæsthetic in one sense, is not so in the same sense as is cocaine. The former when injected subcutaneously renders a whole or a part of a limb numb, but it is powerless to reduce sensibility to the same degree as cocaine does when applied locally. The fact that theine chiefly acts from the centre to the periphery, makes it very important, in a practical point of view, that it be introduced above the seat of pain, or, at least, over the central origin of pain, in order to secure its full analgesic influence.

The localized action of theine brings out one of the advantages it possesses over morphine and other analgesics. It is pretty well established that morphine, narceine, and other agents of the same class, bring about analgesia only by intoxicating the brain and higher nerve centres, and leaving the peripheral nerves more or less uninfluenced. This undesirable feature of morphine action is absent in theine, for it seems to leave the brain entirely undisturbed, at least so far as any narcotic influence is concerned, unless given in very large doses.

Theine, as a rule, is surprisingly prompt in exerting its analgesic action. I have on a number of occasions witnessed patients who had too much pain to move the arm, or too stiff to stand erect, swing their arms and straighten their bodies in less than five minutes after its introduction. It is not always so prompt, but this may be due to the smallness of the dose. I have seen cases in which no benefit had been derived from one-third of a grain, but which, on the dose being doubled, improved at once. Therefore, when a single dose fails to act favorably, it is always advisable to increase it, even if this has be done to a large extent. I have repeatedly injected two grains, not in a single, but in four separate injections, in as many different localities along the back, within the space of five minutes, and found nothing but the best results.

Another feature which recommends theine to favor is its prolonged influence. After pain has once been relieved by it, it is very rare to find the same returning inside of ten or twelve hours, and oftener not until in twenty-four hours, and then, in all probability, not in its original intensity. I am referring now to obstinate cases of pain. Where the pain is more unstable, it is not a seldom occurrence to find that one or two injections relieve it permanently.

In order to obtain the full effect of theine, it is not necessary to inject it deeper than immediately beneath the skin. Of deep injections I am not able to speak intelligently, always having been satisfied with the results derived from superficial injections. Dr. Castle, in the article referred to, relates his own personal experience with one deep injection, in which the drug certainly exerted a marked influence on the brain, owing, probably, as has already been stated, to the fact that the whole dose received direct entrance into the circulation, and was at once carried to the centres of innervation.

No prolonged irritation and no inflammation are produced at the seat of injection. It gives rise to considerable pain or burning at first, but this disappears in the course of a very few minutes, and is replaced by a marked area of anæsthesia. Most of the burning is undoubtedly due to the comparatively large amount of water which is necessary to dissolve a drug of a solubility as low as that of theine in cold water—which is one in fifty parts. This can be overcome by dissolving the theine in warm water, in which it is very soluble, even at the normal temperature of the body. In this way a whole grain can be dissolved in a very few minims of water.

In regard to the employment of a particular kind of theine, I would say that it is tolerably certain that everything which falls within the commercial description of both drugs is principally made up of theine: hence very good clinical results are obtained from that which is found in the market—especially that of Merck, which I have principally used—although it is very obvious that, if my experimental deductions in regard to the differential action of theine and caffeine are correct, much better results are obtained from theine when unalloyed with caffeine.

In conclusion, I beg to say that all the practical value which the contents of this paper may have, emanates from the pharmacological laboratory, for it was through its methods alone that the first clew to the analgesic action of theine was discovered. I therefore trust that you will receive it as a gift from the experimental department of medicine to and in the interest of that science which we all delight to honor and to encourage, viz., internal therapeutics.

1716 Chestnut St., Philadelphia,
March 24, 1886.

A CASE OF RHEUMATISM WITH AN UNUSUAL AND ALARMING COMPLICATION.

By R. L. MACDONNELL, M.D.,
physician to the montreal general hospital, demonstrator of anatomy in mcgill university.

The following notes place upon record the history of a complication occurring in acute rheumatism, which, so far as I know, has not yet been fully described.

On the 19th of April, 1885, I. P., æt. forty, a merchant, was attacked with sharp pain between the shoulders and in the right hip. The patient is a thin but muscular man of highly nervous temperament, and was at one time a well-known athlete. Has always been in very good health and of regular and temperate habits; cannot remember any pre-

vious illness, with the exception of one or two very slight attacks of so-called rheumatism, which did not necessitate rest in bed; and one, rather more severe, four years ago, which kept him in bed three or four days. No history or evidence of gout or syphilis. Father of the patient died young; mother and one sister at present in good health; never had any brothers.

The pain complained of was particularly severe in the upper and back part of the right hip, and was increased by pressure along the course of the great sciatic nerve; but pain between the shoulders, though present, was not severe. The general health was unaffected. I injected one-quarter of a grain of sulphate of morphia, but with little relief.

April 20 (second day of the illness). Slept badly and sweated profusely during the night. Pains between the shoulders, and in arms and wrists, but less in the hip than yesterday. No swelling in any of the joints. Does not feel so well; pulse 100, regular; temperature 100° F. in the morning; nervous and fidgety. Physical examination of the chest yields negative results. Fair appetite; coated tongue; bowels sluggish; urine scanty and febrile. Ordered salicylate of soda in twenty grain doses every four hours.

21st (third day). There was decided improvement. The pains less severe, the pulse reduced, the temperature normal.

23d (fifth day). The pains are not severe and not localized. Sweating profuse, more especially at night.

26th (eighth day). Is now fairly well; can move about the house, but still complains of slight pains about the chest. Reëxamined thorax, but could find no physical signs to account for the symptoms.

28th (tenth day). Stopped the salicylate of soda mixture and gave one containing ten minims of colchicum wine and five grains of the iodide of potassium.

May 4 (sixteenth day). For the last two or three days has been obliged to return to bed suffering from pains in the joints, more especially of the wrist and the right thumb, as well as both sides of the chest, the groin, the spermatic cord, the left testis, the calf of the leg. The pulse has been 70 to 80; the temperature but slightly above normal. Urine acid; high colored; no albumen; no sugar. Appetite fair but capricious. Bowels sluggish.

Yesterday afternoon he had been more bright and cheerful than for some days, the pains about the body being less troublesome, but the sweating still profuse. Toward evening, however, he felt very much fatigued. At half-past seven felt sick, tried several times to vomit, but failed; finally threw himself back on the bed exhausted, saying that he felt faint and wanted air. A few minutes later I found him very much altered, though scarcely presenting the pallid appearance of one suffering from an ordinary syncopal attack. The breathing was steady and regular, respirations twenty to the minute, full and deep. The pulse beat strongly at 26; no irregularity or intermittency. The patient, though very weak and faint, was not unconscious. I lowered his head, slapped his face with a wet towel, applied a sinapism to the heart, and warm bottles to the feet, all with the effect of considerably reviving him, but without quickening the heart's action, which fell in half an hour to 24 beats a minute. The breathing continued full and regular at 20–22.

At 8.30 P. M. Dr. George Ross joined me in consultation. At the time of his arrival the pulse beat was 24. An ether and ammonia mixture was administered, with no good result. At 9 P. M. the pulse fell to 22.

5th (seventeenth day). Slept fairly all night; taking nourishment at intervals. At 5.30 A. M., pulse 26; felt more comfortable and less weak. Having no stethoscope with me, I was unable to make a careful observation of the heart sounds during the night. This morning, however, there was visible pulsation in radial, ulnar, and carotid arteries. Apex beat was in its normal position; no thrill; heart's action regular; no increase in normal area of cardiac dulness. At the junction of the third left costal cartilage with the sternum, there is a soft, blowing, systolic murmur, which is not conducted over the usual aortic area, nor toward the apex around the chest. The second sound is decidedly roughened. The pulse is now 30. At 4 P. M. the pulse was 46, steady and regular. Cannot pass urine in the horizontal position. Bladder emptied with a catheter.

6th (eighteenth day). Condition improved Pulse 58; steady and regular. The murmur is unchanged. Pain and swelling in the right wrist. The patient is nervous and hysterical. Slight nocturnal delirium. The evening temperature is 102.4°.

7th (nineteenth day). Had a very quiet night; feels comfortable and refreshed. Pulse 70, but intermittent in about one beat in five. Condition of heart unchanged. Pain has left entirely the right wrist, and gone to the left. Passed water freely without the aid of a catheter. 5 P. M., pulse intermits at every eighth beat. Murmur unaltered. The pain is now centred in the calf of one leg. Is passing a considerable quantity of watery urine. At 8.30 the temperature was 103°.

8th (twentieth day). 10 A. M., pulse 90, temp. 101°, resp. 20. Passed a restless night, owing to the pain. Both wrists are now very painful, and slightly swollen. The pulse is regular; no intermissions. The murmur has disappeared. Is unable to pass water unaided.

10th (twenty-second day) Pain is now in the left foot, the wrists being quite free. Heart murmur is again audible, though it is by no means as loud as formerly. Urine is passed naturally.

June 1. There was gradual improvement up to the last week in May. The heart symptoms had disappeared, and there was no more pain in the joints. About the 28th of May, the temperature began to range high, reaching 100.4° for three consecutive nights. There was also frequent pain in micturition, the urine being loaded with lithates and mucus; no albumen or sugar. On May 29th, there were decided pain and tenderness in the perineum, and on the 30th a small abscess burst into the lower part of the rectum, after which he felt much relieved.

The case progressed favorably, though slowly, to

complete recovery, the patient being now (August 1) able to resume his ordinary pursuits.

Remarks.—The interest of this case centres in the remarkable slowing of the pulse, without which, it would be regarded simply as a case of acute rheumatism with a heart murmur, disappearing on the recovery of the patient.

Some doubt might, however, be thrown upon the original diagnosis of rheumatism, but what other disease could produce a lengthy illness such as this, with metastatic pains in the joints, with profuse sweats, and heart complication? None with this exact combination of symptoms; but, after the event, looking back over the history, might not all be accounted for by the suggestion of septicæmia? The actual occurrence of suppuration lends force to this hypothesis. The presence of pus hidden away in the ischio-rectal fossa, may have caused the symptoms from the first. Certain it is, that they improved as soon as the abscess was emptied. However, none of the more pronounced symptoms of blood poisoning were present. There were no rigors, no irregular pyrexia, no diarrhœa, no permanent joint swelling, no oscillations of the temperature, and, after all, the small abscess was, most probably, of but a few days' formation.

The cardiac complication, I regard as depending upon the action of the rheumatic poison upon the innervation of the heart, and not upon the presence of endocarditis. All considerations point to the functional character of the murmur. Records exist of the slowing of the pulse under nervous influences, to a point as low as fourteen or even twelve, though I am unable to find a case in which such an occurrence was noted in connection with acute rheumatism. The character of the murmur was not such as might be expected to occur in ordinary rheumatic endocarditis. It was not distinctly aortic, decidedly not mitral. It was heard over the right ventricle extending from the sternum to the nipple. It seems probable that it was a tricuspid murmur, either the result of passing endocarditis or the result of disordered cardiac innervation, the latter seeming to me to be the more reasonable explanation. Lastly, the symptoms could not have been caused by any remedy administered at the time, for during the forty-eight hours preceding the attack, he had had no internal medicine at all, the colchicum having been stopped. A liniment of camphor, aconite, and belladonna was in use, but it had been applied for several weeks previously, without producing any untoward symptoms.

MEDICAL PROGRESS.

The Hygiene of the Newly Born.—The following instructions to mothers and nurses, prepared by a commission composed of Moutard Martin, Bergeron, Parrot, Blachez, and Dujardin-Beaumetz, have been issued by the head of the Department of Public Charities, Paris:

1. Till the appearance of the first teeth—*i. e.*, between the sixth and seventh months—the only food of the infant should be milk, that of the mother preferably, if she be in good condition, otherwise that of a wetnurse. It is very dangerous to give an infant solid food of any kind during the first months of its life.

2. The child should be offered the breast about once in two hours, and less often in the night.

3. In the event of inability to provide woman's milk the milk of the cow or goat may be substituted. This milk should be given warm, diluted with one-fourth part water, and slightly sweetened. At the beginning of the fifth month the milk may be taken pure. All other liquids employed to dilute the milk (thin gruel, bread water, barley water) are injurious.

4. In feeding the infant, glass nursing bottles should be employed. These, especially the tubing and the mouth piece, should be thoroughly cleansed every time they are used. Never allow nurses to resort to those "sugar teats" with which some mothers seek to appease the cries of the infant, and which are sure to produce canker, and disorder the digestion.

5. It is not till the sixth or seventh month that one should begin to allow farinaceous substances with milk, such as bread, baked flour, rice, arrowroot, mealy potatoes; these supplementary foods should always form a considerable part of the infant's dietary toward the end of the first year, to accustom the child to weaning. Weaning ought not to be thought of till the first twelve or sixteen teeth have pierced the gums, while the infant is in a good state of health, and during the lull which follows an eruption of teeth.

6. Every morning the "toilet" of the little one should be made before suckling or feeding; this toilet consists: (1) in washing the child's body, and especially the genitals, which ought always to be kept clean; (2) in scrubbing the head, on which it will not do to let scurf or dandruff accumulate; (3) in changing (at least every second day) the child's underclothing; (4) in giving a warm bath, in which the infant should be held five or six minutes. The belly band ought to be kept on during the first month.

7. Swaddling clothes, which cause compression of the body, should be interdicted. The more freedom the young child has in its movements, the more robust it becomes, and the better its development. All swathing which encumbers the neck and head should also be discarded.

8. The infant should be protected against the injurious effects of excess of cold and heat, whether outdoors or in the house; within doors, the air should be renewed several times a day.

9. It is not safe to carry the babe into the open air before the fifteenth day, unless the temperature is very mild.

10. The child ought not to be allowed to sleep in the same bed with its mother or nurse.

11. The bed of the infant should be composed of oaten straw, soft thatch, or husks; the cradle should have curtains during the first months of infancy, and especially during the cold season, to avoid currents of air, but these curtains should never be completely closed. The babe ought not to be rocked.

12. There should not be undue haste in teaching the infant to walk; it should be allowed to creep on the floor and help itself up; walking carts and baskets should be discountenanced.

13. The least indisposition on the part of the infant (colic, diarrhœa, vomiting, cough) should be at once attended to.

14. As pregnancy has the effect of rendering the milk less nutritious, in case of pregnancy every nursing woman should cease to suckle her infant.

15. It is a good plan to vaccinate infants during the first three months after birth, or during the first few weeks, if an epidemic of smallpox is prevailing.—*Boston Medical and Surgical Journal*, April 8, 1886.

Two Cases of Bronchiectasis treated by Paracentesis.—Drs. Williams and Godlee presented before the Royal Medical and Chirurgical Society the following report: The first case was that of a gentleman, aged sixty-seven, who had suffered for two years from chronic bronchitis and emphysema, and six months later had dry pleurisy of the right lung. After the pleurisy, the expectoration, before moderate, became profuse and somewhat fetid, the cough more and more harassing; and, although Malvern and Bournemouth were visited, and a great amount of antiseptic treatment was tried, he obtained no relief. On February 3d he was seen by Dr. Williams, who noted the existence of a bronchiectasis in the lower lobe of the left lung, the pleura of which was adherent. Tubular sounds were heard over two small areas, neither exceeding a half-crown in circumference, in the eighth interspace. At the request of Dr. Williams, a puncture was made by Mr. Godlee into the first area, with an aspirating trocar and canula. Under antiseptic precautions, the cavity was opened, and a drainage tube inserted. The result of the operation was, that the cough nearly ceased; the expectoration, which was for a few days pneumonic, diminished from one pint a day to a few pellets, and became free from odor; and the patient gained flesh rapidly. At the end of six weeks, the discharge ceased, the channel closed, and the wound healed up. Examination of the chest showed complete disappearance of tubular sound from the second area, as well as from the first, and further shrinking of the chest-wall. The patient, at the close of nine months after the operation, remained free from cough and expectoration, and was able to walk four miles at a stretch. The second case was that of a girl aged twenty-one, who, ever since an attack of typhoid fever, had had troublesome cough and copious expectoration, gradually increasing in quantity, and becoming more and more fetid. She had had hæmoptysis three times, on one occasion amounting to a pint. Examination of the chest showed several bronchiectases, two of which gave rise to very coarse râles over areas about the size of a half-crown in the sixth and seventh interspaces in the axilla; a third area was detected in the eighth space below the scapular angle. At first, the patient improved under antiseptic treatment, the expectoration diminishing and becoming less fetid; but after a while these measures ceased to give relief, and an operation was decided on. On June 29th, at Dr. Williams's request, Mr. Godlee passed a small exploratory trocar successively into each of the three marked spots, and, obtaining no result, inserted a large sized aspirating trocar and canula into the seat of the first puncture in the sixth interspace. But an attempt to cut down on the cavity failed. A second operation was performed on July 16th, and, after some exploratory punctures, Mr. Godlee, with antiseptic precautions, cut down on and laid bare the eighth rib, and excised about an inch of it in order to approach nearer to the bronchi before attempting to open them. The trocar and canula were then passed to a depth of five inches, and Mr. Godlee cut down along the canula, and inserted a drainage tube. The wound gradually healed, and the patient left the hospital at the beginning of September considerably improved, the cough slight, the sputum having diminished to about three ounces a day, and being only occasionally fetid. The presence of bronchiectases in other parts of the left lung, and possibly also in the right lung, precluded such complete success as was obtained in Case 1. A short account was then given of four other cases of bronchiectases treated by tapping, in all of which the position of the cavities had been recognized and successfully punctured, but, owing to the presence of other bronchial dilatations, the success was only partial in these cases. The arguments in favor of the operation were: 1. The tendency to death by septicæmia in some form, unless proper drainage was effected; 2. The reduction in the amount of expectoration, this being due, not only to the removal of the matter, but to the disappearance of the effects of its irritation on the healthy bronchi; 3. The invulnerability of the lung tissue; it being proved that punctures of this tissue gave rise to little or no disturbance to the part, or to the system generally. The difficulties of the operation were principally those of diagnosis of the exact positions of the bronchiectases: (1) from the presence of emphysema; (2) from the reverberatory character of their auscultatory sounds, which rendered exact localization very difficult. Paracentesis of bronchiectases seemed to be indicated under the following circumstances: 1. In cases where, antiseptic treatment of all kinds having failed to correct the fetor of expectoration, and to allay the harassing nature of the cough, death by septic pneumonia seemed imminent. 2. Where the evidence went to prove that the bronchiectases were confined to one lung, were situated in the lower lobe, and had overlying them an adherent pleura. It was not indicated where multiple bronchiectases existed in both lungs, where they were surrounded by emphysema, and where the pleura was non-adherent.—*British Medical Journal*, March 27, 1886.

Chronic Tea Poisoning.—As a result of the analysis of seventy-four cases of chronic tea intoxication Dr. William N. Bullard, of Boston, records the following conclusions:

1. That the action of tea is cumulative.

2. That its action is more pronounced on the young and on those subject to anæmia or in a depressed physical condition, although persons otherwise healthy not infrequently show toxic symptoms.

3. That among the class of people under consideration, who, as a rule, use medium grades of Oolong and English Breakfast tea the average amount needed to cause toxic symptoms is a little less than five cups per diem.

4. That chronic tea poisoning is a frequent affection, and that its most common symptoms are loss of appetite, dyspepsia, palpitation, headache, vomiting, and nausea, combined with nervousness and various forms of functional nervous affections, hysterical or neuralgic. These symptoms are frequently accompanied by constipation and pain in the left side or cardiac region.—*Boston Medical and Surgical Journal*, April 8, 1886.

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SATURDAY, APRIL 17, 1886.

ON REDUCTION OF UTERINE INVERSION.

UTERINE inversion, although of infrequent occurrence, is of such grave import that any contribution to our knowledge of the subject demands careful consideration. DR. JAMES H. AVELING, in a recent interesting lecture upon inversion of the uterus, in the *British Medical Journal* of March 13th, gives three modes of inversion, fundal, lateral, and cervical. In the first, the fundus of the uterus first passes through the os; in the second, one of the sides of the uterus; and, in the third, the process begins in the lower part of the uterus. Theoretically, this classification may be scientific, but practically it is of no value, as in a complete inversion it would be impossible to know where the process began; and so, too, were this known, we would not be in the least assisted by the information in effecting the reduction.

In describing the causes of inversion, the author gives one form of the accident as automatic, and states that it results from the contractions of the uterus. "It is always of the fundal variety, and is determined by an indentation of the top of the uterus, or by some body attached inside to the fundus." But this cupping, or indentation of the uterine fundus, is not automatic, while the subsequent contractions, which complete the inversion by acting upon the introcedent fundus, are automatic. In the production of this variety of the displacement importance is given to the attachment of the placenta to the fundus; and so, too, in lateral inversion, like importance is given to its attachment to one of the sides of the uterus; but we must remember that the placenta is very rarely attached to the fundus, still more rarely to the side of the uterus; and, therefore, it is quite possible that some of the cases both of fundal as well as of lateral inversion, when caused either by the spontaneous dragging of the placenta, or pulling upon the cord, were really instances of inversion beginning in the posterior or anterior uterine wall.

In giving the diagnosis of recent inversion, Dr. Aveling makes the following statements: "Manual examination discovers a large, rounded mass in the vagina, which can be pushed up, replaced, and does not fall again, as would be the case with all the other presenting bodies for which it might be mistaken. The fingers passed through the os are also arrested, and no uterine cavity is to be found. The sensibility of the inverted uterus is another valuable diagnostic symptom." Now, we believe there are some important errors in these statements. Possibly, if an inverted uterus be examined immediately after the accident, "the large, rounded mass" described will be found; we have never had an opportunity of making such an examination; but if the examination be made forty-eight hours after the accident, the uterus may be found pyriform, and very little larger than an inversion of some weeks' duration. Then, as to this mass being "pushed up, replaced," the words, if they mean anything, simply indicate that the dislocation is reduced, and there is an end to any question of diagnosis. The third error which we wish to point out, is that "the sensibility of the inverted uterus is a valuable diagnostic symptom." While theoretically this statement is true, yet we know no observed facts which prove it; on the other hand, we do know that the inverted uterus may be pressed by the grasping hand, and may have an exploring needle thrust into its tissue without the patient complaining; the introduction of the hand into the vagina will cause pain, but not the pressure upon the uterus, or its puncture. Now let us imagine a case in which a pyriform tumor, such as has been described, is found in the vagina forty-eight hours after labor, and this tumor is insensitive. Abdominal examination discovers a roundish, resisting mass which reaches to the umbilicus, pressure upon which causes escape of clots from the vagina; and if one goes no further in his examination—if he accepts Dr. Aveling's statements as to the form and as to the sensibility of the inverted uterus—he will surely be led into a dangerous error. But if, notwithstanding the statements of nurse and professional attendant that the patient urinates freely, he pass a catheter into the bladder, he may find that the abdominal tumor is caused by the distended bladder. In every doubtful case, then, we insist upon this matter as one of the highest importance: a catheter should be introduced into the bladder, so as to be sure that this organ is empty. Error will be thus avoided, and the possibility of bimanual examination secured.

In referring to methods of reduction of chronic

inversion, that is inversion continuing after involution has been completed, Dr. Aveling speaks of White's mothod as "a combination of taxis with violent pressure, by means of a ten-pound spring against the chest." This statement does scant justice to a method which counts so many successes, so few failures. The "violent pressure" exists only in the minds of our British brothers, and the method includes counter-pressure, and really is as little likely to do harm as "the sustained elastic pressure" recommended by Aveling, in which the force exerted cannot be certainly known. The first use of elastic pressure by means of rubber bands is credited to Dr. Robert Barnes. Barnes used a pelvic-curved repositor, Duncan a straight one, while Aveling's has a sigmoid curve, and hence his method may be called a modification of Duncan's modification of Barnes's method. Aveling's repositor has a vaginal and a perineal curve, so that theoretically the pressure is made "in the direction of the axis of the uterus." Ten cases are narrated in which the instrument was used successfully for the reduction of chronic uterine inversion: the longest period required for reducing the dislocation was fifty-four hours and a half, the shortest nine hours. A case, however, is quoted from Atthill in which the use of the instrument failed.

It is probable that Dr. Aveling too greatly exalts his method, not recognizing the value of any other, as he certainly is in error in the assertion that "every case of chronic inversion of the uterus can be cured by sustained elastic pressure exercised in the right direction." The possible adhesions between the peritoneal surfaces of an inverted uterus, as demonstrated in a case reported by Velpeau, would certainly be an effectual barrier against reduction of the inversion, even though the sigmoid repositor of Aveling were used.

Aveling quotes Newnham, who wrote in 1818, as saying that "it is wisest and best to reinvert the uterus by returning that portion of it which was last expelled from the os uteri." Obviously, in adopting this rule as one to be followed in the reduction of chronic inversion, Aveling forgets the cases where the inversion began at the cervix. Again, he credits Newnham with the enunciation of a rule, in 1818, which was just as plainly stated by Leroux, in 1776, and had still earlier been suggested by Astruc and by Puzos.

Notwithstanding Aveling's strong recommendation of his method of reducing chronic inversion of the uterus, we certainly prefer that of White, which is accomplished in a shorter time, and in which the operator assists the action of the repositor by counter-pressure, and by stretching, with his finger in the vagina, the collar-like projection of the cervix, thus facilitating directly the restoration of the lower part of the inverted organ first. We would reserve continued elastic pressure for such cases of this dislocation in which the use of taxis and a repositor has been in vain.

THE BLOOD PLAQUE.

The chief interest of Professor Osler's Cartwright Lectures, the last of which appears in this week's issue of The News, lies in the full consideration of the much debated third corpuscle for which the term plaque is suggested. This element has had a hard struggle for recognition at the hands of histologists, and even yet there are capable observers who are not convinced of its existence. The difficulty lies in the remarkable rapidity with which the corpuscles undergo alteration when the blood is withdrawn, fusing into irregular masses in which the individual elements lose their distinctness. In order to see them clearly, they must be studied within the vessels, or in the blood-drop expressed directly into osmic acid or some fluid which will prevent their adhesion to each other. Under these circumstances it is easy to determine the presence of the plaques, and the conditions are such as to render it almost impossible that they should arise from the disintegration of the other corpuscles. The balance of testimony is strongly in favor of the views of Osler, Hayem, Bizzozero, that they are preëxistent, independent blood elements.

Their origin does not appear to have been determined, but their relation to the development of the red corpuscles, and to the process of coagulation, are questions which have aroused very considerable interest. Hayem gave the term hæmatoblast to the corpuscle, believing that it represented the early condition of the red corpuscle, of which the microcyte was an intermediate stage. The discoid shape, the gradations in size, the abundance in the blood in the young, and in the adult in conditions when blood-making is active, favor this view; but other observers have not been able to detect the gradual tinting of the plaques, and the intermediate forms which Hayem describes, and their relation to the regeneration of the corpuscles remains doubtful.

An important part of the work of the past few years on these bodies relates to their connection with coagulation and thrombosis, and the facts which are given in the third lecture, if corroborated, will necessitate a modification of the current views of the physiology of these processes. From the first, Hayem insisted that the hæmatoblast played an important *rôle* in coagulation, but his observations did not arouse the attention which they deserved. Since the issue, however, of Bizzozero's paper, in 1882, the subject has been very carefully studied, and the evidence has gradually accumulated in favor of the view that these bodies share, at any rate, with the colorless corpuscles in the formation of fibrin. That

the leucocytes undergo disintegration as coagulation proceeds, would appear to be established by the experiments of Schmidt's pupils and of Wooldridge, and yet we are told in the study of the histogenesis of fibrin with the microscope, under conditions the most favorable for the detection of any changes in the colorless corpuscles, it does not seem possible to demonstrate their participation in the process. There is a glaring contradiction here which subsequent observations must explain. The evidence brought forward by those who maintain that the plaques are important agents in coagulation, may be thus summarized: First, they are the elements which immediately adhere to any foreign body within the vessel, or to its cut edges, if wounded; second, in circulating blood the plaques may be shown to be the bodies which aggregate upon any laceration and form the basis of the thrombi so produced; and third, they compose the structures known as white thrombi.

It is to be hoped that the presentation of this subject will stimulate further research, and enable us before long to pronounce more definitely on the relation of these elements to blood formation.

THE ASSIMILATION OF IRON.

MUCH difference of opinion has existed as to the method of action of ferruginous tonics. That their use is of advantage is a matter of daily observation, but many difficulties arise when we attempt to explain their mode of assimilation, for, apart from the fact that nearly if not quite all the iron so ingested is recoverable in the feces, we are met with the equally perplexing fact that iron salts when introduced into the blood stream cause toxic symptoms analogous to those induced by arsenic.

It has long been recognized that the iron entering into our structure is not normally derived from any inorganic salt, but from one or more complex iron-containing compounds existing in our food, and to be found typically, of course, in milk. BUNGE, in the *Zeitschrift für physiologische Chemie* for 1885, records the extraction, from milk and from egg yolk, of this iron-containing organic compound, to which he gives the name of hæmatogen.

Hæmatogen markedly resembles hæmoglobin in molecular composition, though a still more close molecular resemblance may be traced between it and nuclein, if we ignore the absence of iron in the latter body. Bunge has extracted hæmatogen from the cereals and leguminosæ, and states very distinctly that our food "contains no inorganic iron combination, the iron present being in the form of complex organic compounds, which are built up by the vital activity of the plant; that in these forms the iron is absorbed and assimilated; and that from them the hæmoglobin originates."

Starting from these premises, Bunge's explanation of the value of inorganic iron salts in chlorosis is very interesting. The catarrhal state of the alimentary tract present in this condition favors a process of fermentation which induces the decomposition of hæmatogen. But when the inorganic iron salts are present, the sulphites evolved in decomposition attack such salts, with the result of sparing the hæmatogen. Confirmatory to this theory is the recent method of treatment of chlorosis, in which the disinfection of the digestive tract by the administration of small antiseptic doses of hydrochloric acid, after meals, has been found more efficient than the use of iron.

FILARIA SANGUINIS HOMINIS.

THE discovery by DR. GUITÉRAS that this hæmatozoon is native in the United States, as published in THE MEDICAL NEWS of last week, is an exceedingly interesting contribution to helminthology. Heretofore, the cases which have been observed in this country have been uniformly imported, and at Key West Dr. Guitéras has had four examples in Cubans. The Charleston patient is a female, the subject of chyluria, a condition most frequently associated with the presence of a parasite, and from the history there can be no question that she contracted the disease in one of the Southern States, either Georgia or South Carolina. In a second case, a male with commencing elephantiasis of the scrotum, the patient has never been outside of Charleston. It is highly probable that a considerable number of the cases of chyluria and elephantiasis occurring in the Southern States will be found associated with the filaria.

These hæmatozoa are widely distributed throughout the animal kingdom, and they may occur in enormous numbers without causing apparent inconvenience. In the dog, in the country, they are not at all uncommon, particularly in the South, and in the Wister and Horner Museum of the University of Pennsylvania may be seen the specimen presented by Dr. Joseph Jones, in which the right heart is full of the adult parasites. It was from this specimen that Dr. Leidy gave his original description of *filaria immitis*.

Practitioners will do well to remember that there are cases of chyluria and hæmato-chyluria of non-parasitic origin, and care must be exercised in the examination of the blood, the specimen being taken during the night, at which period alone the embryos are to be found in the blood.

THE DETERMINING CAUSE OF LABOR.

THE determining cause of labor has been the subject of discussion for hundreds of years, and we are as ignorant now as they were who began the discussion. Avicenna was content to say that labor came on at the end of nine months by the grace of God.

and to-day we can only state that labor occurs at a definite time according to a law of nature.

One of the many improbable hypotheses which have been suggested as the determining causes of labor, was that of the late Dr. Tyler Smith; he held that the *primum mobile* was in the action of the ovaries. We have often wondered why some of those who are engaged in vivisection did not try removal of the ovaries in some of the inferior animals while they were pregnant; were this done, and the hypothesis of Smith be true, these animals would have their pregnancies indefinitely prolonged, for there would not be for them any ovarian nisus, or impulse, to start the machinery of parturition. Such experiments, we believe, have never been made, although it is some years since they were publicly suggested. Meantime, however, the experiment has been made upon the human female. In England a pregnant woman had both ovaries removed, and she recovered perfectly from the operation, but, with total disregard for Tyler Smith's explanation of the etiology of labor, she got rid of her offspring in the natural way, if not quite at the normal time. Of course, one case does not disprove the hypothesis, but it adds to its generally conceded improbability. One might indeed suggest that, possibly, in this case the removal of the ovaries was incomplete, that some fragment of ovarian tissue was left, or that there was a supernumerary ovary, but a hypothesis which rests upon hypothesis has a very insecure foundation.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 1, 1886.

The President, A. Jacobi, M.D., in the Chair.

Dr. Henry C. Coe read a paper entitled

IS DISEASE OF THE UTERINE APPENDAGES AS FREQUENT AS IT HAS BEEN REPRESENTED?

In commencing his essay he stated that it was not intended as defiant scepticism, but as a mild negative. There is much yet to be learned in regard to the pathology of the uterine appendages. While in all modern systematic treatises on the diseases peculiar to women, many chapters are devoted to ovarian tumors and their removal by surgical procedure, very little is to be found in regard to ovaritis and peri-ovaritis, and that little, wholly unsatisfactory.

Agnosticism in regard to ovarian and tubal disease meets with very little encouragement at the present day, and this is due to a large extent to the surgeon. Having put the query, what constitutes a normal ovary? Dr. Coe said that this was a thing which has come to be somewhat problematical, except in the case of some of the lower animals. In considering the condition and appearance of the ovary in any given case, it must not be forgotten that during the entire sexual life of the female constant changes are going on in these organs. Hence, it is very difficult to say where the normal ends and the pathological begins. Nothing is now more frequent than to remove ovaries because they are "cystic," on the ground that, in consequence of this condition, they are functionally useless. Yet Dr. Coe has seen cysts as large as a marble which could not be called pathological, because they contained perfectly healthy ova which were certainly capable of being impregnated.

Taking up the pathological conditions of the ovary, as viewed by the laparotomist, he said that many of the variations of the organ, in size and shape, which were commonly regarded as pathological by him, were found in ovaries which were to be regarded as, in fact, altogether normal, at least, so far as function was concerned. Congestion and moderate enlargement do not necessarily imply chronic ovaritis, and indicate oöphorectomy; since, when the other pelvic organs are for any reason in a condition of hyperæmia, the ovaries are naturally found hyperæmic also.

In the same way a decided diminution in size may not be pathological, but merely an indication of senile atrophy. Again, certain conditions which are regarded by the laparotomist as pathological, such as thickening of the external covering of the organ, may not be so in reality, since such thickening is not at all abnormal in senile atrophy, or after very frequent ovulation, when localized thickening is very common, even when senile atrophy does not yet exist. But, although there may be exterior thickening, it is no indication that there is cirrhosis of the internal stroma of the organ which interferes with its functions.

The most frequent causes for which ovaries are extirpated, however, is so-called cystic degeneration, and Dr. Coe remarked in this connection that if the slightly cystic condition which is so frequently met with in the ovary is of grave import, few women are free from the danger of serious cystoma.

He next passed on to consider the subject from a microscopical point of view. In order that the pathologist may give an intelligent opinion concerning any removed ovary presented to him for examination, he must be familiar with the normal histology of the organ, and, on account of the constant changes going on in the ovaries, previously referred to, this is a matter which involves no little difficulty. The pathological appearances of well-marked disease are easily recognized; but the lesser ones must be acknowledged to be very difficult to differentiate. Again, because one portion of the organ is diseased, it is no reason why the whole of it should be involved in the pathological process; and, acting on this principle, Schröder has lately been operating in such a way as to remove the diseased portions and allow the rest to remain. The number of cases thus far recorded, however, is too small to base any positive conclusions upon as to the practical utility of this method. At present, this seems somewhat problematical; but it is, at all events, gratifying to note it as a step in the right direction.

Tubal Disease.—During the three years that have elapsed since Tait called special attention to this condition, and Thomas popularized Tait's operation in America by his paper before the Academy of Medicine, this procedure has been resorted to an immense number of times; and there can be no doubt that it has been

greatly abused. No reasonable objection can be raised to the removal of Fallopian tubes which are filled with pus; but this is not the case with a large number of the tubes that are taken out.

Tait says, that in chronic disease of the ovaries the tubes are always affected; but Dr. Coe denies this, as the result of his personal pathological observations. Some of the so-called diseases of the tubes are not recognizable by the pathologist at all. There is no doubt about pyosalpinx or hydrosalpinx, when these conditions are present; but as to so-called catarrhal salpingitis, "commencing pyosalpinx," and other presumed pathological conditions which constantly pass unchallenged in learned societies, there is very good reason for doubt. In cases where the diagnosis of catarrhal salpingitis has been made, and the tubes and ovaries removed in consequence of the condition, Dr. Coe has found, on subsequent examination, simply moderate hyperæmia, with a thin coating of mucus, which may exist in a perfectly normal Fallopian tube; there being no evidence of inflammation whatsoever. So long as the lumen is free and the lining mucous membrane capable of performing its function, the tube is not abnormal; notwithstanding the fact that there may be slight adhesions of the fimbriated extremity.

From his examinations he would say that pyosalpinx exists in about one-fifth of the cases where Tait's operation is performed. Hydrosalpinx is considerably less common, and hæmatosalpinx is extremely rare. If there is no pus discoverable, there is ertainly no pyosalpinx; just as in general practice we say in a case of suspected abscess, that if there is no evidence of pus, there is no abscess.

The pain that is so often attributed to disease of the tubes, Dr. Coe believes to be generally due to localized peritonitis or to neuralgia pure and simple. There can be no doubt that far too many tubes and ovaries are removed at the present day, and the one criticism that he would make on American laparotomists is, that they do not follow up their cases for a sufficiently long time. As a rule, they are reported very shortly after the operation, when the results often seem all that could be desired; but if the histories could be given of the condition from six months to two years later, it would not infrequently be found that no permanent improvement whatever had resulted from the procedure. He has met with many women under these circumstances who still have the same pain as before the operation.

The deductions drawn by Dr. Coe are somewhat as follows:

(1) Ovarian disease is not as common as it is now generally supposed to be. This impression is derived from the surgeon, and not the pathologist.

(2) Because the ovary is partially diseased, it does not follow that the whole organ is implicated.

(3) "Cystic" and "cystic degeneration" are mischievous terms, which have been productive of much evil by leading to false conclusions, and unnecessary ovariotomies in consequence.

(4) Actual disease of the tubes is far less frequent than many surgeons would have us believe.

(5) Localized peritonitis will account for much of the trouble attributed to disease of the uterine appendages.

Dr. Coe said, in conclusion, that, while the normal histology of these organs is not well understood, and their various pathological conditions must, therefore, necessarily be regarded as still *sub judice*, he was heartily in favor of the performance of laparotomy in all perfectly legitimate cases.

DR. LUSK said that the author of the paper had covered nearly all the ground which he had himself been accustomed to take in the tirades against the abuse of Tait's operation, with which many of his gynecological friends are now familiar. He was by no means an enemy of the operation, and thought it did great good in its place; but he had to say that he had stood by and seen tubes removed which are described by various pathological names, but which seemed to him entirely normal. In the same way he had seen ovaries taken out, of which it was said that they were in a state of commencing cystic degeneration, but which appeared to him typical examples of physiological ovaries, precisely like those he had formerly been accustomed to exhibit to his class as such when he used to teach the branch of physiology. He then took great interest, he said, in pointing out the changes which are constantly going on in these organs; and these so-called cystic ovaries, which had been removed for merely imaginary disease, were simply ovaries which were undergoing these same physiological changes.

Since surgeons had come to be able to remove the ovaries and tubes with very little risk to the patient, the operation, he believed, was performed entirely too frequently. Tait's advice is to cut open the abdomen and examine the condition of the ovaries and tubes; when, if they are found all right, they are to be returned to their places in the pelvic cavity. But he himself had yet to meet with the surgeon who after getting thus far in the operation, did not take out the organs altogether, whatever their condition might be.

He believed that there are very few cases in which the condition of pyosalpinx cannot be diagnosticated by proper manipulation with the fingers of one hand in the vagina, and that the great mistake of the present day is the too frequent opening of the abdomen. Unless the enlarged tube can be felt, in the manner described, outside the body, the operation ought not to be performed; and unless this rule is adopted, the temptation is to take out too many tubes.

He then went on to say, tha it seemed probable to him that in the future a modification of Tait's operation would come into vogue, which would obviate the necessity of removal of the tubes even in pyosalpinx and hydrosalpinx. The time would come, he thought, when these distended tubes would be evacuated through the vagina by means of some such instrument as Dr. Mundé had devised, which consists of a syringe with a hypodermatic needle attached to it. In this connection, he related a case of pyosalpinx which had recently come under his observation. He had secured the pavilion at the hospital for the patient, engaged the nurses, appointed the day for the performance of laparotomy, and invited a number of friends to be present at the operation; when, a short time before the time fixed for the latter, the woman noticed an unusual discharge from the rectum, and in a day or two the tumor caused by the distended tube had completely disappeared.

As to the removal of the ovaries and tubes, when these organs are normal, for the relief of neuralgia and

other conditions, the result is very uncertain, and the disturbance of the general system by the operation is so great that the most serious consequences are liable to ensue. In one case of his own, in which he had been obliged to remove the ovaries and tubes in connection with a large fibroid which demanded extirpation, the patient had been rendered insane by the operation.

Dr. W. Gill Wylie said that he did not propose to defend any one for taking out normal ovaries. He did not see how the question under consideration could be settled, if an absolute distinction be drawn, as seemed to be done by Dr. Coe, between the surgeon and the pathologist. In the cases in which he had operated, his ground for doing so had been the symptoms of the patient and what he could detect before opening the abdomen. He had always been especially careful as to diagnosis, so that he could be able to defend his position when the reaction in opinion in regard to Tait's operation, which he constantly expected, had set in. While at first he did not feel so sure about the matter, he could now, after etherizing the patient, almost always tell exactly what condition he was going to find upon performing laparotomy. At the present time he very rarely does the operation except for pyosalpinx.

Unless the *symptoms* justify it, he does not operate, whatever the condition that is indicated by local examination. There are many cases of pyosalpinx in which the enlarged tube falls behind the round ligament, and there is very little danger of its bursting into the peritoneal cavity. It is a nice point in diagnosis to distinguish those cases that are likely to burst and give rise to peritonitis; and in instances where there have already been several attacks of localized peritonitis, this result is to be apprehended. When, however, the diseased tube is folded under the broad ligament, the pus, as a rule, points below.

Dr. Wylie went on to say that he operated to cure his cases, and in order to produce a cure, there is no operation that can compare with laparotomy. Aspiration merely evacuates the pus, which is sure to return, and this procedure may cause fatal injury by wounding the ureters, etc. As to the matter of peritonitis, he believed that the vast majority of cases, perhaps ninety-nine out of one hundred, of local peritonitis are associated with disease of the ovaries and tubes.

There were two doubtful cases out of the twenty-two in which he performed laparotomy last year. In these the operation was for the relief of hystero-epilepsy.

Dr. Wm. M. Polk said that some remarks which he made before the New York Obstetrical Society about a year ago, contained the gist of the solution of this whole subject. Dr. Lusk had remarked that in the ease with which the operation is now performed lies the great danger of its abuse. But at the same time he would like to add this fact, that salpingitis is by no means a new disease. It is a pathological condition which has always existed, and which, moreover, has been cured in a large number of cases without laparotomy.

These are cases which used to be treated, in accordance with the suggestion of Emmet and Sims, by putting the patient to bed, using opium freely, and poulticing the abdomen. The women got well, with sound ovaries and tubes, and afterward had children. In a case of this so-called pelvic cellulitis (as it was formerly considered), he asked a distinguished New York gynecologist to make an examination. He did so, and pronounced it to be undoubtedly one of cellulitis. Dr. Polk insisted that he was mistaken, and said that he would prove it if the gentleman would come to the laparotomy which he proposed to perform in the case in three weeks' time. Accordingly, he was present on that occasion. There were induration on one side, and a laceration of the cervix involving the vaginal roof. Dr. Polk cut open the abdomen, and it was found, on examination, that there was a cicatricial thickening in the roof of the vagina; but in between the layers of the broad ligament there was no induration whatever.

In fifteen cases in which he would have made the diagnosis of cellulitis, according to the views in which he was educated, he had performed laparotomy and taken off from the posterior fold of the broad ligament a conglomeration of ovaries, tubes, and new tissue; but, as in the instance just mentioned, there was no induration at all between the layers of the broad ligament, although on external manipulation there had been found a hard mass or tumor in the neighborhood of the broad ligament. He believed, therefore, that the cases now recognized as pyosalpingitis, are those formerly called pelvic cellulitis, and often successfully treated by confinement to bed, opium, poulticing, the douche, etc. As a rule, such cases usually get well; but sometimes they terminate fatally.

The peritonitis which he was accustomed to find he thought came through the tubes. Dr. Coe had said that disease of the tubes is rare; but he must confess that he met with it very often. They did not always contain pus, but, at all events, they presented the evidences of furious inflammation. From his experience in connection with this subject, he has reached the conclusion that localized peritonitis is usually produced from extension of inflammation from the interior of the uterus. Inflammation prefers to take the course which is open to it. In a large number of cases of so-called cellulitis, the trouble is preceded by ordinary endometritis, which may be produced in a thousand ways. This leads directly to inflammation of the tubes, and, finally, of the peritoneal cavity. A simple catarrhal inflammation can as easily extend to the peritoneum as can the poison of gonorrhœa. He would not say that the inflammation might not in certain instances follow the course of the lymphatics and bloodvessels, but this he believed to be a rare exception.

The purulent collections which have heretofore been supposed to be in the folds of the broad ligament are to be regarded, except when they are the result of bad puerperal inflammation, as nothing more than the accumulation of pus in the tubes, which, if the quantity increases rapidly, is likely to escape into the adjoining tissues. The fimbriated extremities of the tubes usually become attached to the broad ligament.

The essential point of this whole matter is that we must change our pathological views before we can reach a unanimous opinion in regard to the advisability of operation. There are a small number of cases which require to be operated on. They are the ones in which there is localized peritonitis with salpingitis, and usually an atrophied ovary.

Dr. P. F. Mundé said that his clinical experience with affections of appendages of the uterus had been

large, and he had taken the trouble in connection with the subject of this evening's paper to look up some statistics regarding it. Out of 3000 cases treated by him in private and hospital practice, 117 were put down as oöphoritis and salpingitis combined with peritonitis.

This showed agreement with the views expressed by Drs. Polk and Wylie, and in his experience he had found that these three conditions almost always coexist.

Besides, there were noted 212 cases of simple, non-complicated oöphoritis. These figures, he thought, answered the question of the title of Dr. Coe's paper. He would say, therefore, that affections of the uterine appendages are quite as frequent as Tait and his followers assert that they are. He would, however, by no means say that the operation of laparotomy for their relief is required as often as they claim. Dr. Mundé said that he did not agree with Dr. Coe that pachysalpingitis, or thickening of the lining membrane of the tube is so rare as he represents. In his experience it is quite common.

As to dilatation of the tube with fluid, it is not so common as many suppose. He has found but eight cases altogether in which he could detect apparent swelling of the tube. In few of them he aspirated, and drew off a watery serum which contained no ciliated epithelium. He agreed with Dr. Wylie as to the propriety of being guided principally by the symptoms in determining as to the advisability of an operation in any given case.

As regards the removal of normal ovaries, he did not believe in the procedure, as a rule: although he had himself performed the operation twice. One of these patients afterward committed suicide; but the other, who had previously been bedridden for years, was practically a well woman to-day.

Most of those who are acquainted with his views, know that he was very conservative in regard to these operations. So long as we in America cannot open the abdomen without exposing the patient to the danger of death, laparotomy should not be performed when the pathological condition present is doubtful; and he thought the lines should be more closely drawn than has hitherto been the case. Dr. Mundé said, in conclusion, that he did not agree with Dr. Polk in his views in regard to pelvic cellulitis and abscess. These, he thought, actually existed in the pelvic cellular tissue.

Dr. E. Noeggerath said that he was glad to hear the views expressed by Dr. Polk. They are practically the same that he had himself expressed in 1872, viz., that the large majority of cases of peritoneal inflammation are of intrauterine origin, and that while cases of cellulitis and parametritis do occur, it is only when there has been a lesion of the uterus, when the lymph-sac of the lining membrane of the uterus has been broken, as the result of parturition, abortion, etc. Otherwise (if there has been no lesion), the inflammation always extends by means of the tubes.

As regards the question of frequency, he said he could only report what he said in 1872. Endometritis and periovaritis or salpingitis are the most common affections the gynecologist has to treat. After childbirth, cellulitis is more apt to occur.

In regard to the treatment, he said that he was entirely convinced that it is possible to relieve a great many of the cases which are now operated on by careful treatment, consisting of local and general medications.

Dr. Coe, in closing the discussion, remarked that the views expressed in his paper were based on anatomical studies, and he was, consequently, disposed to regard with some doubt a diagnosis resting solely on clinical observation. Feeling that the position which these anatomical studies had caused him to take, might perhaps be more radical than that held by some other pathologists, he had written to the distinguished microscopist, Dr. William H. Welch, now of the Johns Hopkins University, Baltimore, who has had a very large experience in the class of cases in question, and Dr. Welch had written to say that he believed that this position was the correct one. He stated that he saw very few cases of pyosalpinx, and that he was continually receiving ovaries and tubes, removed by surgeons, which were, so far as could be made out, entirely free from disease. He said, in addition, that it was in his opinion a mistake to suppose that the so-called cystic ovaries so frequently extirpated would, if allowed to remain, degenerate into true cystoma.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, March 29, 1886.

The President, James T. Whittaker, M.D., in the Chair.

THE TREATMENT OF CHRONIC CYSTITIS.

Dr. P. S. Conner, in opening the discussion of this subject, said that in a state of health the bladder admirably performs its physiological function, simply that of holding the gradually formed urine until such time as micturition may be convenient and proper. Neither in the viscus itself, its contained fluid, nor in the canal through which it is discharged, is there a source of irritation. But let there be a long-continued altered state of the inflowing fluid, a tumor of the bladder wall, a retained foreign body in the cavity, or an obstacle to the ready outflow of the urine through the urethra, and sooner or later, in greater or less degree, there will be developed a state of chronic inflammation, with associated chemical changes in the constitution of the fluid. In any case, therefore, the diagnosis being established, before any method of treatment is instituted, determination must, if possible, be made of the exciting cause, the removal of which, if ascertained and capable of being taken away, should be effected at the earliest moment. Attention was then called to the proper adaptation of treatment to the location of the cause, whether in the kidney, the bladder, or the urethra. Because of the ready removal of the condition which produces the cystitis associated with stone or stricture, such cases of chronic inflammation of the bladder, if they have not existed so long as to have become complicated with lesions of the kidney, can be cured with comparative ease. It stands to reason that if the inflammation is excited, maintained, or aggravated by the irritant character of the urine, just in proportion as such is lessened, will the morbid state be diminished, and this can be effected in no slight degree by increasing the amount passing through the bladder. To such flushing of the cavity, are due the favorable effects of the administration of large quantities of water, either any ordinary soft

water, or that obtained in a state of purity from certain springs. Some of the infusions owe a part at least of their reputation to the good effect of the cleansing of the bladder by the increased amount of urine passing through. For like reasons, washing out the bladder by injection acts very beneficially, provided it be properly done and with a suitable fluid. The instruments must be clean, in the fullest surgical sense of the word, the fluid warm, and such as to arrest and prevent decomposition. Theoretically the weak sublimate solution is the best that can be employed, but practically it is found not infrequently to be badly borne, even when of a strength of not more than 1 part to 6000, 7000, or 8000. Care must always be taken not to throw in the fluid too rapidly or too strongly, and, if a single-current catheter be used, not to overdistend the bladder.

In elderly men an existing cystitis, if neither stone nor stricture is present, almost always depends upon enlargement of the prostate, in a small proportion of cases confined to the third lobe. Such enlargement acts as a stricture does, producing the same condition of the urine and of the bladder wall. In the earlier stages and the milder degree, the indications for treatment are very clear. Systematically and at regular intervals, the bladder must be completely emptied, and that with the least possible effort to the patient; in other words, catheterization should be made and natural evacuation altogether suspended; suspended, not abandoned, for not infrequently, after the steady use of the catheter for many months or years, patients may, without resulting ill effects, permanently lay aside the instrument. As a rule, however, the subject of prostatic hypertrophy in amount sufficient to produce notable effects upon the bladder and urine, should make up his mind to employ the catheter uniformly during the rest of his lifetime, the soft instrument preferably, and always properly disinfected. The chemical changes in the urine, the speaker said, are in many cases due to the introduction of germs on the catheter that is used, so that the frequent use of the instrument has long been recognized as likely to be, if not certain to be, followed by putrefactive changes in the urine and an aggravation of the symptoms. In the older and severer cases, where the general hypertrophy of the prostate is great, the bas fond of the bladder consequently deep, the residual urine in decided amount, and alkaline in reaction, catheterization and antiseptic irrigation are the essentials of treatment. This, together with the regulation of the general habits of life, will ordinarily keep the patient in a state of comfort. Even when the muscular coat of the bladder has become so enfeebled as to permit overdistention, this method will frequently produce marked improvement in the general and local state. But oftentimes the bladder, instead of being overtolerant is excessively intolerant of fluid, the presence of a very moderate quantity of which is sufficient to excite a spasmodic, painful, imperious desire to urinate. This condition may be associated with and dependent upon prostatic hypertrophy (very apt to be of the ball valve variety, or complicated with urethral stricture), upon bladder tumor, or upon tubercular disease of the prostate or the seminal vesicles.

The intensity of the irritability of the bladder is many times markedly affected by the habits and mental state of the individual. In these cases the plan of treatment already indicated may be sufficient so greatly to lessen the severity of the symptoms as to render the patient unwilling to have anything else done.

With reference to the permanent retention of the catheter in those cases in which its introduction is very difficult, the speaker said that, in his judgment, such a plan is not good, for, even if a soft catheter is employed, it will soon become encrusted, it will generally increase the irritation, and it will be very difficult, if not impossible, to keep it aseptic.

In many cases no soft instrument can be introduced. It is in these cases of severe character, and often of irritable nature, that operative interference is so strongly called for and is capable of accomplishing so much. Rest and the opening of the contracted urethra are the measures recommended. If there is prostatic enlargement, he continued, what can be done? Only a few years ago, it was hoped that in parenchymatous injections of the enlarged gland we should find a means of producing shrinkage, but extended experience has demonstrated that it is utterly valueless. Prostatotomy or prostatectomy, either internal or external, have much to commend them. In all the severe forms of chronic cystitis in the male, it was the opinion of the essayist, that either perineal section or suprapubic cystotomy should be made. By a comparatively slight operation—the opening of the membranous urethra—we may readily get at the prostate, recognize the position of and so be able to remove by knife, punch, or snare, a bar or ball obstructing the neck, and, in the majority of instances, be able with the finger to sweep a part or the whole of the mucous wall of the bladder, thus locating any tumor that may be present. Through such perineal opening, any existing prostatic or vesical calculi may be removed. Further, and more important, thorough and complete drainage of the bladder may be secured, a full-sized tube being easily introduced, comfortably borne, and easily removed, no such objections lying against its use as lie against a permanently retained catheter passed through the unopened urethra. Experience has shown that the presence of a drainage tube thus employed causes a dilatation of the neck and prostatic portion of the canal that may be expected to be permanent, and which will permit, after some weeks or months, of the removal of the tube and the allowing of the healing of the wound. By draining off the urine as fast as it comes into the bladder, there is secured to the organ that rest which, above all things else, is the essential element in the treatment of any surgical affection. If the cystitis depends, as it probably does much oftener than is commonly supposed, upon a vesical tumor, the perineal operation permits of the determination of the location, size, and nature of the neoplasm, of its removal, if practicable, and, under all circumstance, of the cleansing and draining of the cavity.

In those distressing cases, met with usually in young subjects, of cystitis dependent upon local tuberculous deposits, where the symptoms of stone are so closely simulated, perineal section with dilatation or division of the gland gives relief, and that more speedily than anything else that can be done. Guyon and his followers of the French school, urge that the opening into the bladder should be suprapubic, and there are unquestionable advantages in such an operation over the perineal one, with, however, associated disadvantages, so

that extended experience alone will suffice to indicate clearly which should be regarded as preferable in the ordinary run of cases. In any and all forms and grades of chronic cystitis, the prime indications of treatment are to remove the cause and give the organ rest, and just in proportion as these indications can be fulfilled will relief be afforded and a cure effected.

Dr. J. H. Tate remarked that, owing to the importance of the treatment of this disease, especially in the chronic form, physicians have for some time watched with interest to see what their *confrères* would devise for their relief. The experience of the speaker had been confined rather exclusively to the form of the disease which occurs in women, particularly that coming on after parturition. Reference was then made to the obscure etiology of these cases; but many of them, he believed, were due to the use of instruments in parturition or to long-continued pressure of the head. With regard to their treatment, he had frequently found dilatation of the urethra to be followed by speedy cure.

Dr. Joseph Ransohoff wished, however, to lay stress upon one point, namely, that inflammation of the bladder is rarely, if ever, a primary affection, that it is only one of a complex of symptoms, and that we are in all cases to search for the cause. In acute cystitis, the cause is usually a gonorrhœa; in chronic cystitis, it is, nineteen times in every twenty, a stricture of the urethra, or a hypertrophy of the prostate. The speaker did not believe that in a cystitis that is chronic anything can be done for its permanent relief, except through the removal of the cause. That form which depends upon hypertrophy of the prostate and on which the essayist has laid so much stress, is the most difficult form to treat. We are often called upon to treat cases of enlarged prostate in which the first symptom to direct attention to the true condition is the retention of urine. What shall we do in a case of this kind? If we can get into the interior of the bladder once, it is exceedingly likely that we can get into the interior of the bladder again; hence, if we can withdraw the urine by this means, it is preferable to do so without allowing the catheter to remain. If we cannot get into the interior of the bladder we must resort to puncture of the viscus through the anterior abdominal wall or the rectum with a trocar or an aspirator; the trocar puncture has been now almost totally discarded, however, and justly so. But death has resulted also from the use of the aspirator. With regard to allowing the catheter to remain in the bladder for a week or ten days, the speaker said that it is quite a common practice, for when a man has with great difficulty gotten into the bladder, it is with no little hesitation that he withdraws the instrument. It is, however, he added, as bad a method of practice as can be adopted. It is impossible to allow a catheter to remain in the bladder in that way and have it remain aseptic. A decomposition, as it has repeatedly been shown, can take place in the urine only upon the introduction of germs. A simple retention of urine cannot produce an ammoniacal decomposition. Hence the risks are rendered much greater by permitting this source of infection to remain. If we cannot get the catheter in, we should aspirate repeatedly if necessary, until the cause of the retention disappears spontaneously or can be relieved by an operation. Attention has been called to the suprapubic operation for affording a permanent exit for the urine. It was Sir Henry Thompson who first called attention to this mode of operation, but the speaker expressed doubt as to whether the method has been much followed. None of those operated on has lived long, and where there is concentric hypertrophy of the bladder and an instrument cannot be introduced the suprapubic operation is far from easy. We have then only perineal section left. This is an operation which *per se* is comparatively void of danger. It is an operation which is very easy to perform. Of course, the operation is often to be performed in persons advanced in years as well as advanced in disease, whose kidneys are often extensively involved, and in whom any operation will be dangerous, but notwithstanding this fact this operation should always be given the preference to allowing the catheter to remain in the urethra for any length of time. The operation of perineal section is one of the simplest in surgery, when an instrument can be introduced, and one which any physician should be able to perform in an emergency without occasioning the delay of waiting for the arrival of a specialist. It does not require an extensive knowledge or experience in surgery. The operation should be performed early, and if performed early it gives the operator the opportunity of getting directly at the hypertrophied prostate. The first attempts at removal of a part of the prostate were very crude, simply cutting, tearing, crushing the gland with the blades of an instrument ten to twelve inches removed from the operator's hands; so it is not remarkable that these operations were abandoned. But with the opening in the membranous portion of the urethra we can, in most cases, get the entire prostatic portion of the urethra under the finger, and it is easy to get into the gland or into the prostatic portion of the urethra, and with a sharp spoon scrape away the protruding portion of the gland, or remove it with a snare or a galvano-caustic loop. This operation has been quite often performed by Bottini even without preliminary perineal section.

The speaker then referred to several cases in which he had performed this operation, and remarked in conclusion that he had yet to see a case in which he regretted having performed it.

In reference to the cause of certain cases of cystitis as well as their treatment, he said that he could not understand why we may not have the same or a similar condition of affairs about the neck of the bladder, where an exceedingly rich venous plexus is found, that we know to exist at the extremity of the rectum. We have there, with difficult defecation, a hemorrhage which is due to nothing but a varicose dilatation of the veins there situated. We have a plexus of veins about the neck of the bladder; I do not see, therefore, he said, why we may not have just such a "varicose" condition of the veins about the neck of the bladder. A case which he considered of this nature recently came under his observation. The individual had suffered from severe hemorrhage of the bladder. No stone could be detected; in fact, nothing was apparent. He made perineal section, performed divulsion of the neck of the bladder and the individual recovered promptly.

Dr. Thaddeus A. Reamy remarked that he was very much surprised to hear the statement of his friend, Dr. Ransohoff, that ammoniacal decomposition of the

urine cannot occur in the bladder without the introduction of germs by means of instruments. This demonstration has not been made, and if it has been made, its fallacy should at once be refuted. It is against all clinical experience. No subjects are so prone to suffer the consequences of ammoniacal decomposition of the urine as old women, who have more or less pronounced cystocele. Urine being retained in the vesical pouch undergoes decomposition, and these patients are great sufferers from cystitis

That germs promote decomposition of urine in these cases will not be denied, but they are not introduced by instruments. As his time was limited, he confined his remarks to the treatment of cystitis in women past the middle of life. Most of the cases are associated with cystocele. This occurs most frequently, of course, in women who have borne children. In most of these cases it will be found that the cystocele comes on after certain changes which occur in the vagina and pelvic tissues: the absorption of fat, atrophy of muscular fibre, and a change in the conformation of the bladder. The senile atrophy of the uterus has removed the infra-vaginal portion of the cervix, and, therefore, obliteration of the vaginal culs-de-sac. Under these circumstances, as already stated, cystocele occurs, and with it chronic cystitis, which cannot be cured so long as the cystocele is unrelieved.

There are two methods of relief, one palliative, the other radical. Palliation answers in many cases and should always be adopted when it can be successfully done. It consists, of course, in support of the prolapsed portion of the bladder. For this purpose, Skene's pessary answers in some cases admirably, in others he had found far better results from the use of the common watch-spring, rubber-covered, ring pessary. He referred to the well-known modification of Meigs's pessary. This instrument is easy of introduction, and its elasticity prevents it from causing pain or irritation, provided the proper size is selected. As to size, great care is necessary. One of the chief advantages of the instrument is the certainty of its retention in the vagina. Owing to the vaginal changes to which he had already referred, he had found no other form of pessary that is not prone to drop out—a very great inconvenience.

He had ordered made, but has not yet tried, a modification of this instrument which he felt confident would prove of great advantage. This modification consists in attaching two of these ring pessaries, one smaller than the other, so that they are separated about a third of an inch. On introduction the smaller ring is placed toward the uterus. Thus there are two joists instead of one for support of the prolapsed pouch. Should occasion require, three rings could be employed.

The radical method of cure is the removal of a portion of the anterior vaginal wall. The speaker had in several instances removed in this operation a portion of the bladder wall. If care is taken to close the wound with silver sutures, as in the ordinary operation for vesico-vaginal fistula, there need be no fear of evil consequences from this radical measure. The great attenuation of the vaginal wall renders this operation quite easy of performance, and fortunately in cases where the vaginal wall is not so thin, there will usually be found no necessity for carrying the operation so far as to include bladder tissue.

He not unfrequently encountered cases of cystitis in women, of such long standing, with such changes in bladder structure as to render it futile to waste time on any other method than bladder rest, with better opportunity for topical application to the diseased mucous membrane. He does not hesitate in these cases to make a vesico-vagina fistula, making the opening large enough to insure free drainage and at the same time allowing of greater facility in medicating the cavity. He had allowed extreme cases to remain open as long as seven months. He had seen cases of the most desperate character thus cured.

He stated that it is his invariable rule in the above cases to make the opening large enough to admit of thorough exploration of the bladder by the finger for discovering and removing any neoplasm or foreign body that may be present.

He had found dilatation of the urethra seldom useful for relief of vesical irritation, except in nervous or hysterical patients. These are the subjects in which irritable spasm of the urethra occurs. In such subjects he had seen dilatation act as by magic. He uses for the purpose the graduated metallic or hard-rubber dilator, never dividing instruments. The operation is generally done too rapidly. At least an hour should be occupied at a sitting. By such caution more permanent good is obtained; and, though the dilatation be carried to an extreme degree, permanent incontinence will seldom follow. He had never had this misfortune occur in his own practice.

He would not enter upon the medical treatment of cystitis in cases where abnormal urine plays the greatest *rôle*, since this does not differ materially in the female subject from what is needed in the male. He must, however, corroborate what had been said as to the value of the tr. ferri mur. for correction in dyspeptic subjects, and often in pregnant women when the abnormality consists in the amorphous phosphates of lime, and ammonia-magnesian phosphates. Under twenty-five drop doses of this agent four times daily in such cases the quantity of urine is increased, probably as a result of increased blood pressure, and the reaction of the urine is within a few hours normal, vesical irritation at once subsiding.

Dr. Daniel Young remarked that he had made it a rule of practice always to rely upon the milder methods of treating cystitis before resorting to those of a more severe character. Dilate the stricture, if one be present, put the patient at rest, and place a suppository containing morphine in the rectum. In most of the cases which had come under his observation, both in hospital and private practice, this was all that was required for their relief. He had further observed more mischief done by the practice of washing out the bladder than the good that can be claimed for it. He had been particularly impressed with the increase in the number of cases he was called upon to treat at the hospital in the five years which immediately succeeded the introduction of this method of treatment. More severe cases of cystitis were admitted during those five years than in any preceding five years, or during any period of the same length that has followed, and in most of them there was a history of irrigation previous to their admission to the hospital. In regard to the quantity of fluid which should be used in washing out the bladder, it has

been stated that it should be small. There is a great deal of difference in the estimate that is placed upon a small quantity. In reality, no rule can be laid down for the measurement of this quantity, for every case is a law to itself. In some cases a very small amount will cause irritation, while in others several ounces will be tolerated with impunity. The speaker doubted the propriety of operative procedures in cases of long standing, for in a majority of such cases the kidneys will be found to have suffered greatly, and to have undergone such advanced destructive changes as to render valueless any operative measures that might be undertaken.

DR. CONNER, in closing the discussion, remarked that there was much of truth in the statements of the last speaker regarding irrigation of the bladder. It would, however, be remembered that in his paper he stated that the bladder must be properly washed out, by a proper method, with a proper material; for if it be not so done, it will accomplish no good but only harm. The more he sees these cases, the speaker remarked, the more he was convinced that the operation, though simple in statement, is not simple in fact. He did not regard perineal section as one of the simplest in surgery, and one that requires little or no skill and experience. The more he had occasion to make the operation, the more he was impressed with the fact that the exploration of the bladder through a perineal opening might be made a difficult or even an impossible thing at the time of operation. Not long ago he had a case of stone in a man of good physical development, in whom it was impossible to explore the bladder with the finger, although he had made the lateral operation. He was further convinced that in the digital exploration of the bladder more is to be learned than one thinks at first. It is possible, in this way, to detect the existence of a ball valve enlargement of the third lobe, which is not so very infrequently the cause of the difficulty.

It is not impossible, by any means, the speaker continued, to drain the bladder by the suprapubic opening. If the tubes be properly inserted, the urine can be readily drawn off. If the bladder be in a state of moderate distention and properly elevated, it is not a matter of difficulty to find it. In the recent reports from the French hospitals, and particularly from the service of M. Guyon, much information has been furnished respecting operations made in this way.

In conclusion, the speaker remarked that he could readily understand how the use of the pessary referred to by one of the speakers would be followed by relief in cystitis of the female bladder; for the pouch that has been said to exist in the bladder is identical in the effects it produces with that which is formed in the male bladder by a hypertrophied prostate, and by the pessary the lower wall of the bladder is so lifted up that the retaining pouch no longer exists.

Stated Meeting, April 5, 1886.

DR. P. S. CONNER presented a specimen which he had secured since the last meeting of the Academy. He said that the day following the discussion of the treatment of chronic cystitis, in which he had referred to the occasional presence of a ball valve obstruction in the urethra, he had been called upon to operate in a case of this affection. After making a perineal section, he could distinctly feel a prominence in the region of the third lobe of the prostate. This was, without much difficulty, detached, when it was found to be in reality double. Each portion was, when presented, of a conical form, smooth and quite firm; at the time of operation they were very hard. Either one of them would serve completely, or very nearly so, to close the mouth of the urethra. The speaker remarked that he had in his possession, also, specimens which showed very distinctly the bar and ball valve arrangements. The patient in this case was suffering, also, from a large abscess of the abdominal wall, which ruptured internally, and as he was too much reduced to undergo a laparotomy, he died within a few days after the operation.

DR. WILLIAM JUDKINS reported favorable results in a few cases from the administration of herniaria glabra. The cases were, however, of rather an acute character. The specimens of the drug—the dry herb and the fluid extract—had been presented to him by Prof. J. U. Lloyd, of this city, with a very complete history of the plant, its preparations and uses, which the speaker read in full. As its name imports, it was used in early times in the cure of hernia. It then came to be considered a diuretic, but finally fell almost entirely out of use, and is now little known except in the vicinity of Cincinnati, where there is still considerable demand for it. In conclusion, the speaker remarked that while he had seen the most marked results from its use in acute cases, he had found it of great service in others of a chronic form.

DR. JAMES T. WHITTAKER remarked that he had met with what he thought was a rather unusual number of cases of chronic cystitis, most of them grave, in association with stricture of the urethra in young men, and with enlargement of the prostate in the old. The diagnosis of a catarrh of the bladder is frequently indiscriminately made. He frequently had patients come to him with this diagnosis, made either by physicians or by the patient himself, in which no condition warranting the application of the term was present. Many of these cases are examples of what is known as phosphaturia, and a very small minority of them are cases of spermatorrhœa. Phosphaturia is not so rare, the speaker thought, as is generally stated. It has nothing to do with catarrh of the bladder, and in no manner resembles it, except in the fact that deposits are found in the urine. Phosphaturia is simply a neurosis of the kidney. The phosphates are secreted in this affection in such abundance that it is not uncommon to find a patient presenting a specimen in which there is a precipitation of phosphates a quarter or half an inch in depth at the bottom of the vessel. The treatment is very simple, the difficulty being usually quickly cleared up by the administration of a few drops of phosphoric acid several times a day.

With reference to the origin of chronic cystitis, the speaker agreed with the statement made by one of the speakers at the last meeting, that it is a secondary disease. In his experience he had never seen a cystitis that could be attributed to cold, and if such cases occurred they must be exceedingly rare. The cases he had met had occurred, as stated, incidental to gonorrhœa, for the most part in young men, or as a result of enlargement of the prostate, after fifty-two, which is, according to Sir Henry Thompson, the proximal limit

of the disease. Among the cases resulting from gonorrhœa he included those which were due to stricture of the urethra.

The diagnosis of cystitis is generally easy; there is pain associated with tenderness on pressure, and tenesmus often so great—always, in fact, in a bad case—that a little blood is extruded with the urine. This symptom makes itself most manifest at the close of urination, when the sphincter contracts into a sudden spasm. He had never seen it more marked than in a case which he had treated with Dr. Conner, where the individual, on account of refusing an operation, had to be kept under narcotic doses of opium for nearly a month. There is, further, an easy way of recognizing the grade of catarrh present in the bladder; that is, by simply testing the urine. In the milder cases, the urine is still acid, but in the graver cases it will be found to have become alkaline. These patients suffer from the disease paroxysmally. They do not always present the dire picture which was portrayed by a former speaker. They attribute the acute exacerbation to cold. They have been getting along comfortably for months, drawing their urine with catheters, when suddenly there is an acute exacerbation which brings the patient to his physician. If he can tide the patient over for a few weeks he will bring him back to his former chronic state, in which he may live for years in comparative comfort. We cannot often persuade a patient, more especially an old man, to undergo an operation; there is, in fact, nothing harder than to persuade an old man to have an operation performed on an enlarged prostate which he has endured for years. It may be, too, that he recalls cases in which an operation resulted fatally. The young man also will often hesitate a long time before he will consent to have his perineum split open. Young men will generally acknowledge that their disease is the result of an old gonorrhœa, of which they have never been entirely well; that is, there has been at times a reminder in the way of burning, or slight strangury, which finally culminates in the attack. We will also find in these cases that there is more or less constant discharge of thin shreds of tough mucus, so characteristic of gonorrhœal inflammation — "*Tripperschleim*," the Germans call it.

With reference to the irrigation of the bladder, the speaker remarked that it must be practised with the utmost care, or it would bring the physician under criticism like that of a speaker at a previous meeting, who said that he did not believe in it at all. A man who distends the bladder in a state of acute inflammation will do his patient the greatest harm. The bladder should never be washed out with a fountain syringe or with a hard-rubber syringe. It should be done with a very delicate soft-rubber syringe, which the surgeon holds in his own hand, regulating the pressure very carefully. This care should be taken also as to the catheter used. Never use anything but the soft catheter. Under no circumstance should a double catheter be used. With it the bladder is washed out under full distention. The individual having his bladder washed out should never be on his back; he should be in the sitting or standing posture, in the position in which particles of mucus or pus are most easily floated out. Only in the most severe cases should the patient be allowed to remain on his back.

It is a good plan to limit the amount of water the patient drinks. It is well to direct him to drink just as little as possible to assuage his thirst. The greatest damage is often done by allowing these cases to go to watering places; the speaker had lost two cases from this cause, the patients having been persuaded by their friends to try such resorts. The point is to eliminate the water in other ways.

There is only one medicinal treatment, and that is opium in sufficient doses to subdue the cramplike contractions. The best preparation of opium for this purpose is the Dover's powder, which may be made a pleasant medicine by giving it in the form of a syrup. A teaspoonful of this syrup allays the pain better than anything that can be given. The advantage of it is that, with the action of the opium in allaying the pain, we get a sharp diaphoresis—the patient should, of course, be in bed. After awhile there comes the necessity for the administration of stronger preparations of opium. Sometimes great benefit comes from injecting the tincture of opium into the bladder. The mucous membrane in health has little absorptive power, but where the epithelial coat of the bladder is destroyed it is quite different, and the bladder suffering erosion or ulceration will absorb medicines very readily. Some physicians prefer the use of suppositories. No objection can be made to this method.

These are very little points, the speaker said, but they had proved very valuable points to him. Of course, he added, in the presence of mechanical obstacles like those exhibited this evening, there is nothing to be done but surgical interference. In these cases the physician is frequently struck by the apparently anomalous condition that he meets. The catheter will pass readily into the bladder, but on its removal the urethra is completely occluded. It is not right to say that there is no relief for these cases, for there is no relief to be compared to that which is afforded the patient who undergoes a proper operation.

There are no remedies older in medicine, more tried or more relied upon than the turpentines, but it is in the mild cases and in the acute cases that these remedies are of most value; and a remedy of more value than any of these in acute cystitis is the salicylate of soda. All these remedies are valueless in the chronic cases with which we have to do to-night. None of them is to be compared in its effects to the hot sitz bath. The speaker further objected to the statement that these cases are produced by acid. This cause of a disease is very difficult to establish. Again, he asked, how many of the members of the Academy have seen the disease produced by cantharides? We may have seen it when we were students, when that remedy was more frequently applied, but now it is exceedingly rare.

As has been already stated, the vast majority of cases of chronic cystitis are those which are caused by obstruction. They are the cases in which we observe those striking nervous phenomena — beautiful in a pathological sense — cases with shooting pains down the thighs, psychical disturbances, and melancholia. The ancients knew them as *hysteria virilis*, *hysteria masculina*, and vindicated the use of the term in the fact that the prostate gland is the analogue of the uterus.

NEWS ITEMS.

A PASTEUR INSTITUTE.—A commission appointed by the Academy of Sciences has decided upon the establishment of a *locale* in Paris for the treatment of persons bitten by mad dogs. It is to be called "Institut Pasteur," and is to be supported by public subscription. As it is intended to be international, subscriptions are solicited from all parts of the world. A cable despatch announces that already about $10,000 have been raised.

JEFFERSON MEDICAL COLLEGE.—Prof. William H. Pancoast has presented his resignation from the Chair of Anatomy in this school. We understand that the following gentlemen have been nominated for the position thus left vacant: Dr. W. W. Keen, Dr. W. S. Forbes, Dr. J. E. Mears, Dr. O. H. Allis, and Dr. Geo. McClellan. The election will take place this week.

THE LAW OF MEDICAL REGISTRATION.—The law requiring physicians to register with the county authorities has recently received a rather rigid interpretation from Judge McPherson, of Lebanon County. Dr. Ege, a properly registered physician of Berks County, was summoned to attend a patient across the line in Lebanon County, where he was arrested for violating the Registry law. The case came before Judge McPherson, who, after holding it under advisement, finally fined the offending physician $100 and $50 costs. Dr. Ege's counsel took the apparently tenable ground that the fact of his client's registration in Berks County practically fulfilled the requirements of the act, and that the law did not contemplate that a physician should register in every county he might visit professionally; but the Court held to the contrary. The case will be carried up to the Supreme Court, and its outcome from that tribunal will be awaited by the medical fraternity with a good deal of interest.

SANITARY CONVENTION IN PHILADELPHIA.—A sanitary convention, the object of which will be to afford an opportunity for an expression of opinion on matters relating to the public health and the discussion of methods looking toward an advancement in the sanitary condition of the Commonwealth, the prevention of sickness and avoidable death, and the improvement of the conditions of living, will be held in Philadelphia, under the auspices of the State Board of Health, on Wednesday, Thursday, and Friday, May 12, 13, and 14, 1886.

TENNESSEE STATE MEDICAL SOCIETY.—At the annual meeting of the Tennessee State Medical Society, held at Memphis on April 6th and 7th, the following officers were elected for the ensuing year:

President.—Dr. W. T. Briggs, of Nashville.

Vice-Presidents.—Drs. J. W. Penn, of Humboldt, and J. B. W. Martin, of Nashville.

Secretary.—Dr. Ambrose Morrison, of Nashville.

Treasurer.—Dr. Richard Cheatham, of Nashville.

The Society adjourned to meet in Nashville on the second Tuesday in April, 1887.

OBITUARY RECORD.—At Middletown, Conn., on April 12th, ABRAM MARVIN SHEW, M.D., Superintendent of the Connecticut Hospital for the Insane. On February 20th he accidentally fell down the main stairway of the hospital and injured his spine. He had been confined to his room for several weeks, but was apparently getting better when a stroke of apoplexy rendered him unconscious for several hours, and resulted in his death. He was born in Watertown, Conn., in 1841. He served two years in the United States Army as surgeon, and for three years he was attached to the New Jersey State Hospital. Dr. Shew superintended the building of the Middletown Hospital, and since its opening, in 1868, he has been at the head of the institution.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM APRIL 6 TO APRIL 12, 1886.

HARTSUFF, ALBERT, *Major and Surgeon.*—Granted leave of absence for fifteen days.—*S. O. 71, Dept. East*, April 7, 1886.

LAUDERDALE, JOHN V., *Captain and Assistant Surgeon.*—Ordered from Dept. Dakota to Dept. Texas.—*S. O. 79, A. G. O.*, April 5, 1886.

ADAIR, GEORGE W., *Captain and Assistant Surgeon.*—Ordered from Dept. Dakota to Dept East.—*S. O. 79, A. G. O.* April 5, 1886.

FINLEY, JAMES A., *Captain and Assistant Surgeon.*—Ordered from Dept. Texas to Dept. Dakota.—*S. O. 79, A. G. O.*, April 5, 1886.

KILBOURNE, H. S., *Captain and Assistant Surgeon.*—Ordered from Dept. Dakota to Dept. Columbia.—*S. O. 79, A. G. O.*, April 5, 1886.

GARDNER, E. F., *Captain and Assistant Surgeon.*—Ordered from Dept. Columbia to Dept. East.—*S. O. 79, A. G. O.*, April 5, 1886.

GRAY, WM. W., *Captain and Assistant Surgeon.*—Ordered from Dept. East to Dept. Dakota.—*S. O. 79, A. G. O.*, April 5, 1886.

BANISTER, J. M., *Captain and Assistant Surgeon.*—Ordered from Dept. East (upon the expiration of his present leave of absence) to Dept. Columbia.—*S. O. 79, A. G. O.*, April 5, 1886.

CARTER, E. C., *First Lieutenant and Assistant Surgeon.*—Ordered from Dept. Arizona to Columbus Barracks, Ohio.—*S. O. 79, A. G. O.*, April 5, 1886.

JOHNSON, R. W., *First Lieutenant and Assistant Surgeon.*—Ordered from Dept. Dakota to Dept. East.—*S. O. 79. A. G. O.*, April 5. 1886.

WILSON, GEORGE F. *First Lieutenant and Assistant Surgeon.*—Ordered from Dept. Columbia to Dept. Dakota.—*S. O. 79, A. G. O.*, April 5, 1886.

MERVILL, JAMES C., *Captain and Assistant Surgeon.*—Granted leave of absence for three months.—*S. O. 81, A. G. O.*. April 7, 1886.

BIART, VICTOR, *Captain and Assistant Surgeon.*—Sick leave of absence still further extended one year, on account of sickness.—*S. O. 79, A. G. O.*, April 5, 1886.

BIRMINGHAM, H. P., *Captain and Assistant Surgeon.*—(Camp Grant, New York City) temporarily assigned to duty at Fort Columbus, New York Harbor.—*S. O. 72, Department East*, April 8, 1886.

ROBERTSON, R. L., *Assistant Surgeon.*—On expiration of his present leave of absence, will be relieved from duty in Dept. Texas and will report in person to Commanding General Dept. Dakota, for assignment to duty.—*S. O. 78, Department Dakota*, April 3, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING APRIL 10, 1886.

DRAKE, N. H., *Passed Assistant Surgeon.*—Detached from duty at Naval Hospital, Philadelphia, Penna., and ordered to duty at Naval Hospital, Brooklyn, N. Y.

FITTS, H. B., *Passed Assistant Surgeon.*—Detached from duty at Naval Hospital, Brooklyn, N. Y., and ordered to duty at Naval Hospital, Philadelphia, Penna.

ANDERSON, FRANK, *Passed Assistant Surgeon.*—Detached from Naval Laboratory, N. Y., and granted six months' leave, from May 1, 1886, with the privilege of going abroad.

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

PASTEUR'S METHOD FOR THE PREVENTION OF HYDROPHOBIA.

Extract from a lecture delivered before the Alumni Association of Long Island College Hospital, Brooklyn, on April 21, 1886.

BY GEORGE M. STERNBERG, M.D.,
MAJOR AND SURGEON U. S. ARMY.

DURING the past two or three months, the newspapers and medical journals in this country and in Europe have made frequent reference to the protective inoculations against hydrophobia which are being made in Paris under the direction of the distinguished French chemist, Pasteur.

Various opinions have been expressed as to the value of these inoculations as a protection against the painful and fatal disease in question. By some this has been accepted without question in advance of the experimental evidence, which requires the lapse of a certain time to give it value; and it was even proposed to establish institutions in this country for practising Pasteur's method at a time when Pasteur himself did not feel justified in announcing its success as applied to man.

On the other hand, certain conservative medical critics seem unwilling to accord any value to the experimental evidence as it stands to-day; and some have even gone so far as to assume that Pasteur has from the first been laboring under a serious error in assuming that the fatal disease which he induces in rabbits, by inoculations with material obtained rom rabid dogs, is a form of hydrophobia. Pasteur himself has also been the subject of adverse criticism. He has been charged with keeping his method a secret. The man whom we have so long honored for his scientific achievements, and who for several years past has devoted his entire energies to a painstaking experimental research with reference to the cause and prevention of this terrible malady, has been spoken of by some of his American critics in a way which seems to indicate that they consider him an ignoramus and a charlatan.

Such an estimate of the man can only arise from an imperfect acquaintance with his past achievements, and with the scientific method and humanitarian spirit in which his present undertaking has been conducted.

The charge of secrecy is entirely without foundation. Pasteur has very properly refrained from publishing any details with reference to his method while it was still under trial, and he has not been willing to encourage others to commence the practice of protective inoculations before the value and safety of the method had been fully established by his own experiments. But he has always been ready to explain to those competent to appreciate the situation, the exact status of his experimental research, and to demonstrate to proper persons his method of operation.

The writer had evidence of this during a visit to Pasteur's laboratory in May last. At this time no inoculations had been made in the human subject, but Pasteur had fully satisfied himself by repeated experiments that dogs could be rendered immune even after they had been bitten by a rabid animal. He was kind enough to spend a morning in showing me through his laboratory, and in explaining to me his method and the results attained up to that date; and, also, to give me a practical demonstration of his mode of operating upon the rabbit.

The facts as developed by his experimental researches are as follows:

The brain and spinal cord of rabid dogs contain the virus of hydrophobia, and the disease may be transmitted by inoculations with this material.

A most certain way of transmitting the disease is by introducing a small bit of cord, with proper antiseptic precautions, upon the surface of the brain of a susceptible animal. This is most conveniently done by trephining the skull and injecting a little of the virulent material, rubbed up with distilled water or sterilized *bouillon*, beneath the dura mater. In the rabbit such an inoculation induces rabies after an incubation period of fifteen days.

The morbid phenomena which occur in rabbits as a result of such inoculations are not identical with those presented by rabid dogs. But the essential identity of the disease is shown by the fact that the spinal cords of these rabbits have the same pathogenic virulence as is exhibited by similar material obtained from a dog which has succumbed to hydrophobia. This virulence increases by transmitting the disease through a series of rabbits. After transmission through twenty to twenty-five rabbits the period of incubation is reduced to eight days, and by continuing until the series reaches fifty the period is reduced to seven days, but after this no further increase in virulence occurs.

On the other hand, the transmission of the disease through a series of monkeys is attended with a diminution of virulence as shown by a longer period of incubation.

As rabbits are easily obtained, it is evident it is a simple matter to keep on hand a stock of the most potent virus by inoculating one of these animals at frequent intervals with spinal cord from a rabbit in which the period of incubation had been reduced to seven days. But this material is too potent to be used at first in protective inoculations. Fortunately, however, Pasteur has discovered a simple method of attenuating the virulence of such material to any desired degree. He finds that if one of these spinal cords is suspended in dry air the virulence gradually diminishes and finally disappears entirely. The time required for such extinction of virulence depends largely upon the temperature to which the cord is exposed, and also upon its thickness.

By experiment Pasteur has ascertained that at a temperature of 20° C. a piece of cord of moderate thickness loses its virulence in about fifteen days. It is, therefore, possible to have at hand the virus of rabies of various grades of potency. In his protective inoculations Pasteur commences with the least virulent material, and on successive days repeats the operation with more and more potent virus, until at last he uses that of full strength as obtained from a rabbit in which the period of incubation was reduced to seven days.

At the time I visited Pasteur's laboratory the demonstration had been made as to the efficacy of such inoculations so far as dogs are concerned, and I had pointed out to me a number of these immune animals which had proved refractory to inoculations with the most potent virus, or to the bite of a rabid animal.

Before venturing to operate on man, Pasteur had tested his method upon fifty dogs of various ages and varieties, and had in every case rendered them immune.

Finally, on the 6th of last July, the opportunity presented itself to test his method upon man, and with the assistance of MM. Vulpian and Grancher, the boy Joseph Meister was subjected to treatment. This boy had been terribly bitten by a dog supposed to be rabid. This has since been disputed, and, indeed, some of Pasteur's critics are unwilling to admit that the whole series of 350 cases which have since been subjected to the same treatment, can be accepted as furnishing evidence of the value of his method. For, it is said, it is not proved that these individuals were all bitten by rabid animals, and we know by experience that not all of those who are bitten by dogs, undoubtedly rabid, are liable to contract hydrophobia. This is all very true, and Pasteur is as well aware of it as the most learned doctor in the land. But how is he to test his method except by inoculating those who have been bitten by dogs believed to be rabid; and if 350 cases treated with but a single unsuccessful result, cannot be taken as evidence of the value of his method how is such evidence to be obtained?

With reference to the general character of these cases, and the exceptional case in which death occurred after inoculation, I shall let Pasteur speak for himself. I quote from his last communication to the French Academy of Sciences, published in the *Comptes Rendus*, of March 1, 1886.

"On the 26th of last October I communicated to the Academy a method of preventing rabies after the bite of a rabid animal, and gave the details of its application to a young Alsacian, *Joseph Meister*, who had been gravely bitten on the 4th of July, 1885. The dog was manifestly rabid, and a recent inquiry, made by the German authorities, has demonstrated anew that the dog was rabid—*en plein accès de rage*—at the moment when it bit Meister. The health of this child remains perfect. Eight months have elapsed since the bite was inflicted.

"At the time my note was read (Oct. 26th) I had under treatment, a young shepherd, *Jupille*, who had been bitten, even more severely than Meister, on the 14th of October. The health of *Jupille* also remains excellent. It is now four months and a half since he was bitten.

"As soon as the favorable results in these first two attempts became known, a great number of individuals who had been bitten by rabid dogs applied for treatment. This morning we have commenced the preventive inoculation of the 350th patient.

"I confess that I have participated in the general surprise at the large number of persons bitten by rabid dogs, although my laboratory, which has been devoted to the study of this disease for more than five years, has been a centre for information relating to all that concerns this malady. This ignorance resulted from more than one cause.

"As long as rabies was considered incurable, the effort was made to remove from the mind of the patient, even the name of the malady. When a person was bitten, every one declared that it had been by a dog which was not rabid, although the report of the veterinary surgeon or of the physician might affirm the contrary, and the greatest silence was recommended with reference to the accident. . . . .

"In order to convince prejudiced persons or those who might even be hostile, I have taken the precaution to draw up very rigid statistics. I have exacted certificates verifying the fact that the dog was rabid, which have been delivered by authorized veterinary surgeons or by physicians. Nevertheless, in some rare cases, I have felt obliged to treat persons bitten by dogs supposed to be rabid, but which had escaped, because these persons, aside from the possible danger of their bites, lived in a state of fear capable of injuring their health if we had refused our intervention.

"I have not been willing to treat persons whose clothing had not been visibly perforated or torn by the fangs of the animal. It is evident that in this case there is no danger to be feared, because the virus has not been able to penetrate into the flesh, even when a contused wound has been inflicted, although this may have been deep and bleeding. In a certain number of suspected cases the fact that the dog was rabid has been verified in my laboratory, by the inoculation of rabbits, or of guinea-pigs, with nervous material taken from the body of the animal.

"I wish to give here a sufficiently exact idea of the nature of the bites, by quoting, in their chronological order, a series of persons submitted to treatment. As it would be fastidious to enumerate the details relative to three hundred and fifty persons, I will choose more particularly among the one hundred first bitten and treated. These occupy the interval of time between November 1st and December 15th. They have especial interest. They are at the present moment beyond the period truly dangerous.

"If I open my register at the chapter of this first one hundred, I find, in an interval of ten days, the following variety of cases. They will give to the Academy an idea of what passes at my laboratory each morning.

"*Etienne Roumier*, forty-eight years, from the Commune of Ouronëre, bitten in both hands, November 4, 1885, by a dog recognized as rabid by M. Moreau, veterinary surgeon. No cauterization or treatment of wound for twenty-four hours.

"*Chapot*, aged forty-three years, and his daughter, aged fourteen years, living in Lyons, both bitten in left hand, November 6, 1885; the daughter more severely bitten than her father. The wounds were bathed in a

solution of ammonia by a druggist. The dog was recognized as rabid by the veterinary school of Lyons.

"*François St. Martin*, aged ten years, of Tarbes, bitten in right thumb, Wednesday, November 7. Wound washed with ammonia by a druggist. Dog recognized as rabid by M. Dupont, chief of the sanitary service of epizootics.

"*Marguerite Luzier*, aged thirteen years, of Fongrave, bitten in the leg by a rabid cat, November 11, 1885. Wound cauterized with carbolic acid. The extent of the bites made it necessary to place this child in the hospital for children.

Corbillon, aged twenty-seven years, from La Neuville, near Clermont, bitten November 12. Dog recognized as rabid by M. Chantareau, veterinary surgeon at Clermont. Cauterized with a hot iron eight hours after the accident.

"*Bouchet*, aged eight and a half years, lives at the seventh lock of the canal of St. Denis, bitten November 12, in the left hand and in the right thigh; clothing of thigh torn. Dog recognized as rabid by M. Coret, veterinary surgeon at Aubervilliers. Cauterized with a hot iron three-quarters of an hour after the accident by Dr. Dumontel.

Madame Delcroix, of Lille, bitten November 6, in right foot. Cauterized with a hot iron nine hours after the accident. Dog recognized as rabid by M. Frélier, veterinary surgeon at Lille.

"*Plantin*, lives at Etrung, bitten early in November, in the right hand. Cauterized forty-eight hours after the accident. Dog recognized as rabid by M. Eloire, veterinary surgeon at La Capelle.

"*Jeanne Pazat*, aged seven years, of Mareuil, bitten November 12, by a dog, recognized as mad by Dr. de Pindray. Presented himself forty-eight hours after the accident to Dr. de Pindray, who judged, with reason, that it was useless to practise cauterization.

"*Madame Achard*, of Saint Etienne, bitten November 9, in right foot, and November 12, by same dog, in right hand. Dog recognized as rabid by M. Charloy, veterinary surgeon at Saint Etienne. No cauterization.

"*Madame Alphonsine Legrand*, of the commune of Baune, in the department of the Aisne, bitten in the chin November 6, 1885. Dog recognized as rabid by M. Decarme, veterinary surgeon at Château-Theirry. No cauterization.

"*Antoine Cattier*, aged forty-three, lives at No. 12 Rue Hospitalière Saint-Gervais, Paris, bitten in the hand November 16. Cauterized with a hot iron twenty hours after the accident. Dog recognized as mad by its master; characteristic voice of rabies, refused food, bit and swallowed bits of wood and other objects.

"On November 15 were bitten at St. Ouen, near Paris, *Ternat, his wife, Madame Delsors*, and *Madame Dalibard*. All four were bitten by a dog recognized as rabid while living, and after its death by the veterinary surgeon Sanfourche, of Saint-Ouen. Cauterization insignificant or tardy.

"*Dr. John Hughes*, of Oswestry, England, bitten November 13, 1885. Two severe wounds in lower lip. No cauterization. Dog recognized as rabid by the patient himself.

"*Widow Faure*, of the village of Alma, in Algeria, bitten in the leg September 1, 1885, clothing torn, by the same dog which had bitten four infants, one of whom died at the hospital of Mustapha, in Algeria, two months after being bitten. Dr. Moreau, of Algiers, has given a very careful account of the symptoms of rabies in this child. The preventive treatment was applied to the other three in the middle of November.

"*Madame Gréteau*, of Bordeaux, bitten, November 14th, in the right ring-finger by two bites, one in the pulp of the extremity, the other in the nail, which was cut near its centre. Dog recognized as rabid by Dr. Douand. Slight cauterization, and wounds washed with solution of ammonia.

"*Voizenet* of Semur, Gold Coast, fifty years; bitten, November 16th, in both legs by a dog recognized as mad by M. Colas, veterinary surgeon. Cauterized with a hot iron four hours after the accident.

"*Guichon*, of Bordeaux, sixty-seven years; bitten, November 15th, in the left hand by the dog which had bitten Madam Gréteau, referred to above.

"*Walter Halfacre*, of London, twenty-eight years; bitten in the hand, November 15. Sent by Sir James Paget. No serious cauterization. The brother of Halfacre died of hydrophobia five years ago, after a bite to which no attention was paid, as it was considered insignificant.

"*Calmeau*, of Vassy-lez-Avallon; bitten, during the night of November 15th–16th, in the belly, the thigh, and the knee. Clothing and shirt torn in strips. No cauterization whatever. Dog recognized as mad by M. Colas, veterinary surgeon of Semur. The same dog which bit Voisenet, referred to above.

"*Lorda*, aged thirty-six; lives at Lasse (Basses-Pyrénnees). This case is most interesting. Lorda was bitten October 25th, and arrived at my laboratory November 21st, the twenty-seventh day after he was bitten. The day he was bitten, seven pigs and two cows were bitten by the same dog. Now these nine animals died of hydrophobia, the pigs after a short period of incubation of from fifteen days to three weeks. After the death of these animals, Lorda became frightened and set out for Paris. The first cow died thirty-four days after being bitten; the second fifty-two days after. I owe the detail of these interesting facts to M. Inda, the skilful veterinary surgeon of Saint-Palais. One observation made in his report ought not to be omitted: it is that, immediately after being bitten, the cows were profoundly cauterized with a hot iron; this detail is underlined by M. Inda. I have had sufficiently numerous proofs of the inefficacy of cauterizations, in certain cases of those made with a hot iron and without delay. The health of Lorda remains perfect. His treatment was terminated the 28th of last November.

"Such is the enumeration, in the chronological order of their arrival at my laboratory, of twenty-five persons bitten, comprised in a period of ten days. Other periods of ten days offer an enumeration the recital of which would not teach anything more than in that given, although in each period one may encounter one or several cases not less interesting than that of Lorda. In order to abridge, I will only refer to a single one of these cases, and I choose it in preference to others, because it has caused me very lively apprehensions.

"The case is that of a boy of eight years, named *Jullion*, residing at Charonne, No. 6 Rue de Vignolles; bitten November 30th. This child, seeing the dog coming toward him, commenced crying. At this

moment, the lower jaw of the animal entered the open mouth of the child. A fang cut the upper lip and penetrated deeply into the posterior portion of the palate, while one of the fangs of the upper jaw of the animal remained outside of the mouth of the child, penetrating between the right eye and the nose. No cauterization was possible. The dog which bit Jullion was recognized as rabid by M. Guillemard, veterinary surgeon, No. 37 Rue de Citeaux, Paris.

"I could extract from the series of persons treated many other cases of bites in the face and head without any cauterization whatever.

"In a single instance the treatment has been inefficacious; the patient succumbed to hydrophobia after having been subjected to treatment. The case was that of *Louise Pelletier*. This child, aged ten years, was bitten October 3, 1885, at La Varenne-Saint-Hiliare, by a large dog—*Chien de Montagne*—and was brought to me on the 9th of the following November, thirty-seven days after being bitten—profound wounds in the axilla and in the head. The bite in the head was so grave and of such extent that, notwithstanding the continuous care of her physician, it became very purulent and bleeding on the 9th of November. It had an extent of 0.12 to 0.15 m. and the scalp was yet wanting in one place. This wound inspired me with grave fears. I begged Dr. Vulpian to come and verify the condition of the wound. In the scientific interests of the method I ought to have refused to treat this child which arrived at so late a date, and in exceptionally grave condition; but by a sentiment of humanity and in face of the anguish of the parents, I would have reproached myself if I had declined to operate.

"The premonitory symptoms of hydrophobia manifested themselves, November 27th, eleven days after the termination of the treatment. They became more pronounced on the morning of December 1st. Death followed, with the most pronounced symptoms of rabies, on the evening of December 3d.

"A grave question presented itself, What virus had caused the death of the child; that of the bite inflicted by the dog, or that of the protective inoculations? It was easy to determine the question. Twenty-four hours after the death of Louise Pelletier, by authority of the prefect of police and of the parents, the skull was trephined in the vicinity of the wound, and a small quantity of brain substance was aspirated. This was inoculated, by the method of trephining, into two rabbits. These rabbits were attacked with paralytic rabies eighteen days after, both at the same time. After the death of these rabbits their spinal cord was inoculated into two other rabbits, which contracted hydrophobia after an incubation period of fifteen days. These experimental results suffice to demonstrate that the virus which caused the death of the young Pelletier was the virus of the dog by which she had been bitten. If death had been due to the effects of the virus of the preventive inoculations, the duration of the period of incubation in the second rabbits inoculated would have been seven days, at most. This follows from the explanations made in my preceding note to the Academy.

"The preventive treatment has in no instance given rise to evil results in the 350 cases, not a phlegmon, not an abscess, only a slight œdema and redness as a result of the latest inoculations; but can we say that it has been really efficacious for the prevention of rabies after the bite of a rabid animal? For the greater number of persons already treated, one eight months since (Joseph Meister), the second more than four months ago (Jean Baptiste Jupille), and for the greater number of the 350, we may affirm that the new method has stood the test.

"Its efficacy can be inferred, above all, from a knowledge of the average number of cases of rabies resulting from the bite of rabid animals. The works of human medicine, and of veterinary medicine furnish, in this regard, indications which are not at all concordant. This is easily comprehended when one recalls that which I said just now with reference to the silence very often maintained by the families and the physicians as to the existence of bites by rabid dogs, and even upon the cause of death, which is sometimes stated as meningitis when it is well known that it was due to rabies.

"The following fact illustrates the difficulty of establishing reliable statistics. On the 14th of July, 1885, five persons were bitten successively by a rabid dog upon the road to Pantin. All of these persons died of hydrophobia. Dr. Dujardin-Beaumetz informed the Board of Health of the Seine, by order of the Chief of Police, of the names, the circumstances of the bites, and of the death of the five persons. When such a series enters into a statistical table, the proportion of deaths to the number bitten will be more elevated. It will, on the other hand, be diminished by a similar series of five persons bitten, without a single death. I should have greater confidence in the following statistics: M. Leblanc, a learned veterinary surgeon, member of the Academy of Medicine, who has for a long time directed the sanitary service of the préfecture of police of the Seine, has had the kindness to send me a precious document upon the subject of which I am speaking. It is an official summary made by himself from the reports of the commissioners of police, or from information furnished by the veterinary surgeons in charge of the hospitals for dogs. This document covers six years, and shows:

"That in 1878, in the Department of the Seine, out of 103 persons bitten there were 24 cases of hydrophobia.

"In 1879, out of 76 persons bitten 12 died of hydrophobia.

"In 1880, out of 68 persons bitten, 5 died from hydrophobia.

"In 1881, out of 156 persons bitten, 23 died of hydrophobia.

"In 1882, out of 67 persons bitten, 11 died of hydrophobia.

"Finally, in 1883, out of 45 persons bitten, there were 6 deaths from hydrophobia.

"The figures which precede give an average of about one death by hydrophobia for every six persons bitten.

"But in order to appreciate the efficacy of the method for the prophylaxis of hydrophobia, there remains a second question, not less important than that of the average number of cases resulting from the bites of rabid animals. It is the question as to whether sufficient time has elapsed from the date of the bites, among the persons thus far treated, to remove any apprehension that they may be attacked. In other words, after what period may rabies develop as a result of the bite of a rabid animal?

"Statistics show that it is during the two months following the bite that rabies is especially apt to occur—that is to say, within forty to sixty days. Now, among the persons of all ages and all sexes already treated by the new method, one hundred were bitten before the 15th of December—that is to say, more than two and a half months ago. The second hundred have passed from six weeks to two months since the date of being bitten. For the remaining one hundred and fifty persons treated or being treated, all remain, up to the present moment, quite as in the preceding two hundred cases.

"We see that, according to the most rigid statistics, a considerable number of persons have already been rescued from death.

"The prophylaxis of rabies, after infliction of the bite, is established.

"An establishment for protective inoculations against rabies should be founded."

The only criticism which suggests itself with reference to this very interesting statement of facts, is that Pasteur does not attach as much importance to the prophylactic value of early and thorough cauterization, as this measure seems entitled to. The considerable number of cases in which cauterization was practised, may have had a greater influence upon the favorable result in the extended series of cases reported, than Pasteur is willing to admit; at all events, it will be well to withhold our final judgment as to the value of the method, until the 350 cases reported are all beyond the limit of time within which the disease may develop, and especially until we have from Pasteur a satisfactory explanation of the failure in the cases of three of the wolf-bitten Russians, who have recently been under his treatment, and who are reported by telegraph to have died of hydrophobia.

ORIGINAL ARTICLES.

NOTES ON THE LOCALIZATION OF FOREIGN BODIES WHICH HAVE ENTERED THE VITREOUS CHAMBER, AND THE SUBSEQUENT TREATMENT.

CASE OF A PIECE OF STEEL APPEARING IN ORIGINAL WOUND AFTER REMAINING QUIESCENT IN THE EYE FOR NEARLY THREE MONTHS.[1]

By HIRAM WOODS, M.D.,

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No department of ophthalmic surgery has received more careful study of late years than that pertaining to the localization and removal of substances within the eyeball. In many cases great pain enforces prompt action. In all cases the utmost care must be exercised to preserve what sight may remain in the injured eye, and to insure against sympathetic ophthalmia.

Juler[2] states that when foreign bodies enter the eyeball, they "occasionally lodge in the vitreous, although more often they are either arrested in the lens, or pass right through the vitreous chamber." If they pass through the vitreous chamber, they usually lodge in the retina or choroid. When they stop in the vitreous, or, after striking against the fundus, bound back into the vitreous chamber, "they are," says Professor Knapp,[1] "located by preference in the lower part."

What changes their presence within the eye may cause depends largely on their situation. Of all the internal ocular structures, the retina and choroid seem to be most tolerant of a foreign body. The particle may become encysted in one or both of these coats, and remain for many years, or during life, and cause no more trouble than the production of a scotoma. This result is, unfortunately, rare. In by far the majority of cases it sets up a painful acute irido-choroiditis, or an insidious and equally dangerous chronic cyclitis, greatly endangering the sound eye. Hence the localization and removal of the particle become matters of great importance.

We have now many aids in diagnosticating the situation of a substance capable of doing so great mischief. Foremost among these is the ophthalmoscope. Its use is, however, limited to those cases in which the cornea and lens are not rendered opaque by the passage of the foreign body. The ophthalmoscope will frequently show the offending particle embedded in some part of the fundus, or else loose in the vitreous. Special care should be exercised in the examination of the track of the wound and the lower part of the vitreous chamber. In many cases, however, the body has passed into the eye through the cornea and lens, and, when the patient is seen, these structures are so cloudy that a thorough ophthalmoscopic examination is impossible.

To what extent the surgeon should now go in his efforts to make a complete diagnosis must depend on several circumstances. If the case is a recent one, and there is pain, he must, of course, try to find and extract the foreign body. This should *always* be done when the patient cannot be carefully watched. If, however, the case is several days or weeks old, if there is no pain, and if the patient is easily accessible, we are, I think, justified in supposing that the substance has become encysted, and in waiting developments. If this course be pursued, the danger of delay after the first reappearance of pain must be impressed upon the patient.

When the vitreous chamber is to be explored, the silver probe and magnet are the best reputed diagnostic agents. Dr. C. S. Bull[2] speaks of the former as being "almost justifiable when the presence of a foreign body is suspected, though the particle itself is not seen." When used, it is to be carefully introduced into the wound, along its track, and, if possible, without injuring other structures, to the bottom of the vitreous chamber.

The magnet has now generally superseded the probe. Most of the foreign bodies which enter the vitreous chamber are of either iron or steel, and hence the magnet presents these marked advantages over the probe: (1) It will often attract to itself a foreign substance without coming into actual contact with it, and so reveal the particle when the probe might miss it. (2) It serves as an *extractor*. Dr.

[1] Read before the Clinical Society of Maryland, Jan. 22, 1886.
[2] Juler: Text-book of Ophthalmic Science and Practice.

[1] Knapp: Archives of Ophthalmology, xiv., Nos. 2 and 3.
[2] Bull: Ibid., ix., No. 1.

MacKeown,[1] of Belfast, seems to have been the first to use the magnet, not only as an extractor, and "as a probe," but also as "a means of diagnosis when held outside the eye by the movements impressed on a suspected foreign body."[2] In one case "a quivering movement of the body was caused" by a "magnet held close to the eye." The body was subsequently extracted. In another,[3] a doubtful body was in the iris, and a magnet held close to the cornea caused "the pupil to change its shape." A pointed magnet then "drew the segment of iris containing the foreign body through the wound." Mr. MacHardy, of London,[4] applied a powerful electro-magnet in front of an eye" with a recent corneal wound and a severe iritis. Immediately great pain was caused. After anæsthesia, the continued application of the magnet to the front of the eye caused the body "at once to pass out of the eye, and fasten itself upon the pole of the magnet." Dr. Minor[5] reports a very similar case, and others are found in current literature.

The magnets commonly used are the *electro*-magnet—either that devised by Prof. Hirschberg,[6] or some modification of it—and the *permanent* magnet, one of the best being that of Dr. Grüning,[7] of New York. Of these, the *electro*-magnet is the stronger and more reliable. Prof. Knapp[8] thus states the present position of the magnet as a diagnostic agent:

"It seems legitimate, even when the foreign body can neither be seen, nor by an exudation or a limitation in the field of vision be localized with some degree of probability, to open the capsule in the outer lower quadrant, introduce the point of a magnet, which should not be too long or too thin, directly to the bottom of the vitreous, then withdraw. In case the foreign body is not reached, a second or third attempt, cautiously probing a larger area of the interior of the eye, can be made with sufficient safety."

During my three years' connection with the Presbyterian Eye, Ear, and Throat Hospital, I have frequently seen Prof. Chisolm *suspect* the presence of a foreign body within the eye—although the patient was sure it was not there—on account of the *chemosis of the conjunctiva*. In many instances subsequent enucleation confirmed his suspicion. Chemosis, as an accompaniment of foreign bodies within the eye, has been noted by several observers, Prof. Knapp,[9] Prof. Hirschberg,[10] and others. In these cases, as well as in those I have observed in the practice of Prof. Chisolm, there were considerable pain, increased by pressure, and marked signs of intraocular inflammation. "Œdema of the conjunctiva is met with very frequently in the course of inflammations of the inner tunics of the eye," says Soelberg Wells.[11] It may be that the chemosis mentioned was simply the result of intraocular inflammation brought about by the foreign body within the eye. At any rate, I think that conjunctival chemosis is present in a sufficient number of cases to justify its being classed as a symptom "leading us to *suspect* the presence of a foreign body within the eye"—provided, of course, the history is one of injury to the eye. Dr. C. S. Bull,[1] Editor of the American edition of Soelberg Wells's text-book, gives the following under this head: (1) The persistence of pericorneal injection and of a marked tenderness on pressure, even when phthisis bulbi has begun; (2) The *increase* of tension with the presence of cyclitis, instead of a *diminution* of tension, as we should naturally expect.

In regard to the *treatment*, if the case is of long standing, if the foreign body can be seen encysted in the fundus, and is causing no other trouble than the production of a scotoma in the visual field, it is best to leave it alone—always, however, warning the patient of the possibility of the substance becoming loosened, and then causing trouble. The same may hold good if the eye has been destroyed. Still, as there is in this case no sight to preserve, it is unquestionably safer to attempt the removal of the body, and, failing in this, to enucleate the globe. Prof. Knapp[2] relates a case, first reported by Dr. G. Strawbridge, in which a destroyed eyeball was kept for ten years. During this time it underwent three attacks of irido-choroiditis, which subsided without involving the other eye. Sympathetic irritation occurred after the fourth attack, when the globe was enucleated. The splinter was found in the sclerotic. He also mentions[3] a case of his own in which he was obliged to enucleate seventeen years after the injury had been received.

In *recent* cases Prof. Knapp[4] advises the attempt to remove "the foreign body by curved hooks, forceps, or the magnet only, if it can be seen; otherwise he would let the patient quietly lie in bed on his back, use atropia, and bandage both eyes with absorbent cotton and a flannel roller, thus securing the best conditions for the foreign body to sink on the retina, in case it be floating in the vitreous, as well as to fasten itself on or in the retina, if once it have reached that membrane." In a more recent article,[5] however (from which I have already extensively quoted), he thus concludes his very clear directions regarding the use of the magnet as a diagnostic agent:

"When the foreign body is not then brought out" (*i.e.*, after three or four attempts to find it with the magnet) "it is more advisable to enucleate the eye than to make further attempts, because rude dealing with the interior of the eye, even if the foreign body is at last removed, frequently enough causes cyclitis, which is dangerous for both eyes."

When the particle is seen, and an attempt to remove it is decided upon, it is generally best to open the eyeball at the site of the foreign body. Prof. Knapp[6] suggests a scleral flap as being preferable to a linear incision straight down upon the body. In a

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1 Quoted by Hirschberg, Arch. of Ophth., x., No. 4.
2 Loc. cit.
3 Loc. cit.
4 Quoted by Hirschberg, Arch. of Ophth., x., No. 4.
5 Minor: Arch. of Ophth., xii., No. 1.
6 Described in article, Arch. of Ophth., x., No. 4.
7 Described in Soelberg Wells's Text-book, 4th American edition.
8 Arch. Ophth., xiv., 2 and 3.
9 Knapp: Arch. Ophth., ix., No. 2, Case 2. Also case quoted by Hirschberg, Arch. Ophth., x., No. 4.
10 Loc. cit.
11 Text-book, 4th American edition.

1 Wells's Text-book.
2 Knapp: Archives of Ophthalmology, xi., No. 2.
3 Ibid., xiv., Nos. 2 and 3.
4 Ibid., xi., No. 2.
5 Knapp: Archives of Ophthalmology, xiv., Nos. 2 and 3.
6 Ibid., Arch. Opth., ix., 2, Case 1.

case narrated[1] he "united the scleral wound with two delicate silk sutures." He lost no vitreous during the operation, and the wound healed kindly.

Dr. J. L. Minor[2] suggests that when the magnet is to be used, the opening in the sclera be a "triangular flap." He thinks that this step "reduces to a minimum the danger of having the particle of iron scraped off when the magnet is withdrawn." The conjunctiva over the flap is to be sutured after operation.

Finally, it is always necessary, in giving a prognosis, to bear in mind Prof. Hirschberg's[3] remark, that "Enucleation is only sometimes *postponed* but *not prevented*," when the attempt at removal is successful. In the preparation of this paper I have found forty-nine carefully reported cases of successful attempts to remove foreign bodies which had pierced the vitreous chamber. In eight of these, two opticociliary neurotomies and six enucleations were done on account of the reappearance of inflammatory symptoms in periods ranging from three weeks to three months after the removal of the foreign body.

The following case presents many points of interest in the diagnosis and treatment of foreign bodies within the eye: F. B., male, thirty years of age, employee of the Baltimore and Ohio Railroad, applied for treatment at the Presbyterian Eye, Ear, and Throat Hospital, on October 18, 1884. He gave the following history: On the 14th instant, while working in the foundry-shop at Mount Clare Station, he was struck in the right eye by a piece of steel casting, chipped off by the hammer of the man next to him. He claimed that he was able to see with the eye directly after the accident, and on his arrival home one hour later. During that afternoon he consulted Dr. Russell Murdoch, of this city. Dr. Murdoch has kindly informed me of the man's condition at the time he saw him, and of what he did for him. He found the patient suffering some pain, with a jagged, irregular wound in his cornea, and the iris cut. The man could not see when Dr. Murdoch saw him, as the *lens was opaque*. After the patient had been etherized, Dr. Murdoch introduced the small bar of Grüning's permanent magnet into the wound, passing it behind the iris and into the vitreous chamber. Failing to find the foreign body after three or four attempts, he allowed the patient to recover consciousness, and then advised enucleation. This was refused.

The individual now for four days made use of the popular "sugar of lead" eye-wash, and at the end of that time was brought by a friend to the Presbyterian Eye, Ear, and Throat Hospital. His eye was then free from pain, and presented the following appearance: There was some conjunctival congestion, but no chemosis. The cornea showed an irregular cut, commencing at the pupillary centre, and extending along the horizontal meridian almost to the inner scleral junction, then running upward and inward, and extending about a line into the sclerotic. The iris was cut from the pupil upward and inward to the periphery. Along the vertical portion of the corneal wound it was adherent to the corneal edges. The pupil was small, indistinct in its outline, and filled with the cataractous lens. There was good light perception. I gave the patient a four grain solution of atropia to be used every four hours, and put on a cold compress. I saw him the next day at my office, and carefully examined the wound for a foreign body, but found none. There was no dilatation of the pupil from the atropia. The man had had a comfortable night, and was free from pain. I told him he would probably have to allow the eye to be removed, but concluded, as he was perfectly easy, and could be seen when necessary, to await developments. After Dr. Murdoch's careful search for the foreign body, I considered any further work in that line unnecessary. He was ordered to continue the atropia, and to refrain from work of any kind. For the next ten weeks, till December 20th, I saw him two or three times a week. His condition was practically unchanged.

About December 23d he commenced to complain of pain. The eye became somewhat congested, and on December 26th was quite red and painful. On this day I discovered, on examining the wound by oblique illumination, a pin-point, brownish spot in the scleral wound. This had not been there before. I immediately cocainized the eye, and on passing a fine probe between the edges of the wound, I felt something hard. With a pair of iris scissors I enlarged, or rather reopened, the vertical portion of the corneal wound. As I did so, a brownish mass, partly covered by iris, filled the incision. With a pair of iris forceps I raised this out of the eye, and in doing so a small splinter tore the iris. This torn iris I cut off. A few drops of blood and a bead of vitreous were lost. The instillation of a drop of eserine, and the application of a cold compress completed the operation. The man walked home after about two hours. The corneal wound healed nicely, and I thought he was all right.

On January 1, 1885, he came into my office, and said he felt a "little splinter" in his eye. On looking at the scleral wound I thought I discovered a minute speck of steel. I carefully reopened the scleral wound and introduced the point of a Grüning magnet behind the iris. I found two small splinters of steel on the magnet when I withdrew it. I introduced it twice again, but got nothing.

From this time on, the patient made an uninterrupted recovery. There was no reaction from the second operation. The piece I removed on Dec. 26th weighed 162 milligrammes (two and one-half grains), is six mm. long, five mm. broad, and one and one-half mm. thick. I last saw the patient on January 1, 1886. He has suffered no pain for a year. The iris has lost its natural color, and the globe is somewhat shrunken, but there is still good light perception; T—.

An interesting question in this case is, Where was that piece of steel during those ten weeks? I think the absence of pain until December 23d, with its sudden appearance on that day, and the consecutive congestion of the eye, lend force to the hypothesis that when the foreign body entered the eye it became lodged and partly encysted in the upper and inner

[1] Knapp: Arch. Opth., ix., 2, Case 1.
[2] Minor: Arch. of Ophth., xii., No. 1.
[3] Arch. Ophth., x., 4.

periphery of the choroid and retina. In some way, about December 23d, the piece became loosened from its attachments, fell against the ciliary bodies, and thus set up the pain of which the patient complained at the time. After once being loose in the vitreous chamber. the substance probably found less resistance in the direction of the original wound than in any other. Usually the passage of a foreign body through the vitreous leads to its disorganization, and if the substance is loosened from any attachments it may form, it will drop to the bottom of the vitreous chamber.

I was somewhat surprised that cyclitis did not follow my rather free manipulation of the eye. Concerning this point, it would have been better to use the magnet at the time of my first operation.

I do not consider that my patient is entirely free from the dangers of sympathetic ophthalmia, and shall not be surprised at any time if called on to enucleate the eye.

NOTE ON REMOVAL OF THE UTERINE APPENDAGES.

BY LAWSON TAIT, F.R.C.S., M.D.,
OF BIRMINGHAM, ENGLAND.

I AM induced by a paper which has recently been published by my esteemed friend, Dr. G. Taber Johnson, in the proceedings of the American Gynecological Society, to draw attention once more to a certain kind of confusion which is constantly being evinced by writers on this question.

In the second sentence of Dr. Taber Johnson's paper, he says "that he has simply to add to the statistics of oöphorectomy his little quota of four cases and a few remarks upon early diagnosis and earlier operations in the distressing class of cases which are finally relieved by Battey's or Tait's operation." The confusion of which I complain, and against which I have to remonstrate three or four times a year, exists in the use of the word *oöphorectomy*, and in the use of Battey's or Tait's operation as meaning the same thing. I object altogether to the use of the word *oöphorectomy*, and the confusion that I complain of arises entirely from the persistency of its use. If it were banished, and the simple English phrase "removal of the appendages" employed, we should at once get rid of this objectionable confusion.

I also object altogether to any operation which I perform or advocate being considered as the same thing as that which is known as Battey's operation. Battey clearly defined his operation to be a proceeding for the purpose of indirectly curing reflex symptoms by bringing about an artificial menopause, and therefore the term "normal ovariotomy" was used for it. The operation which I indicate is that of removing diseased uterine appendages, etc., in the case of myoma of the uterus, removing the appendages in order, by the arrest of menstruation directly, to cure the disease. Dr. Taber Johnson's cases were instances of Battey's operation, not in the least resembling Tait's.

In Dr. Taber Johnson's first case, operated upon on August 17, 1882, he removed both ovaries and one Fallopian tube. For several months after, she had no periods, and no spasms, and she greatly improved in her general health and appearance. Gradually her menses returned, and with convulsions in mild form, so that now, three years after her operation, she is menstruating with more regularity than ever, but with less frequent and much less severe attacks than formerly. From the history Dr. Taber Johnson gives of the case, it is perfectly clear that this is really a case of Battey's operation; it is not a case of my operation, because the patient has not been cured by the removal of both tubes, and that is essential, according to my views, for the proceeding. Dr. Taber Johnson very properly argues upon this question by Battey's theory, and performs Battey's operation. But the case has not been so successful as his other cases, because the operation of "oöphorectomy" was performed, and not that of the removal of the uterine appendages.

In his second case he removed the ovaries and tubes, and the patient made a perfect recovery. She was sitting up in a fortnight, and has not menstruated since, because he removed the appendages.

In the third case, also, Dr. Johnson removed both ovaries and tubes, and the patient made an excellent recovery, and continues to this day to be a marvel to herself and friends.

The fourth case was, unfortunately, fatal, and therefore I can say little or nothing about it, but it is perfectly clear from the result obtained in the three successful cases that Tait's operation and Battey's operation are altogether different things, and, if Dr. Johnson will allow me to say so, I think my operation is founded on altogether different conceptions of physiology and pathology.

I desire particularly to draw attention to a sentence in Dr. Taber Johnson's paper, in which he attributes, what he is kind enough to say, is "my own wonderful success," to the fact that I make "my diagnosis early before my patients are exhausted, and that I operate when their powers of recuperation are yet good, and under circumstances free from any possible septic infection." This appears to be the case, judging from the histories narrated in his recent paper upon his "Modern Treatment of Uterine Myoma."

Concerning the statement that Dr. Johnson makes that my operations are performed under circumstances free from any possible septic infection, I do not quite understand from what he makes that assertion, because I really do not know anything about it myself. I have long since ceased to believe in anything which is conveyed in the ordinary sense of the word septic. I have ceased to take any kind of precaution against the so-called septic poisons or germs, and I do not believe that they do the least harm. Therefore the statement which Dr. Johnson makes is, so far as I know anything about my own works, absolutely without foundation.

Another of Dr. Johnson's statements is that I make my diagnosis early. I make my diagnosis as early as I get my patients, but I get them in all stages of the disease, from the acute attacks to the suffering women who have gone for fifteen or twenty years with the disease in continuous and increasing progress. I get them exhausted in every conceivable

way, and if Dr. Johnson is under the impression that I get a series of selected cases with little or nothing the matter with them, he has not availed himself of the detailed descriptions which I have given of my operations, and of the pathological appearances of the parts removed. A large number of these preparations are, I believe, in the Army Medical Museum at Washington, to which I presented them, and therefore they are easily within Dr. Johnson's reach, and there can hardly be an excuse for the statements he makes.

Further on in his paper, Dr. Johnson says "that I operate early and find few adhesions." This he bases on the paper which I wrote on the "Modern Treatment of Uterine Myoma," and, of course, in cases of myoma there never are adhesions; but he is speaking in his paper entirely of chronic inflammatory disease of the uterine appendages, and in every one of my cases of that disease there are adhesions, and adhesions of the most terrible kind, involving, as I have repeatedly said, laceration of intestine. If he will only look at the preparations in the Washington Museum, he will find abundant evidence of this. It is, therefore, not the secret of my success either that I operate early, which unfortunately I am not allowed to do, or that I find few adhesions. There are adhesions in certainly ninety-five per cent. of my cases.

These mistaken ideas on the part of Dr. Taber Johnson are due entirely to the fact that he is mixing up the facts of two different operations for two totally different diseases in which the circumstances are not in any way analogous, and his use of the word "oöphrectomy" is to be blamed entirely for this confusion.

Let me further say, that the case to which he alludes, in the hands of another surgeon, in which the adhesions were so great and so extensive as to necessitate the making of a large incision, the drawing out of the intestines, and continued manipulation in the pelvic cavity for nearly two hours before the operation could be completed, is simply disgraceful to surgery. No kind of adhesions necessitate an incision larger than will admit two fingers; the extension of the incision and the pulling out of intestine do not facilitate the proceedings one bit; and no kind of adhesions justify an operator continuing to operate for two hours. Anyone who requires such a time should cease to operate, and no kind of adhesions should delay the operation more than twenty to thirty minutes. The conclusion that I have come to, after the explanations which are advanced by Dr. Johnson and others concerning the success in these operations, is that it is due to their skilful and rapid performance and not to any outside cause; that, in fact, Dr. Keith was perfectly right when he said many years ago that we had been ready to blame every other cause than our want of skill and our want of experience for our failures.

If I may repeat in summary what I have said over and over again about this kind of work, I would say that it should be divided into three classes, as follows:

1. Cases in which, in the words of Battey, it is proposed to relieve reflex symptoms by an artificial menopause. In such cases the appendages are not diseased, as in Dr. Taber Johnson's they were not. The results of the proceeding are unsatisfactory, and though an occasional success or improvement in the patient is met with, the operation must be entirely devoid of mortality if it is to be justified at all. I do not encourage its performance. It was first performed by Battey, with a fatal result, on August 17, 1872, and therefore, if proper names are to be given to the operations, it deserves to have Dr. Battey's name attached to it.

2. Removal of the uterine appendages for uterine myoma. This operation I have performed now some hundreds of times with the most brilliant success both in primary mortality and in secondary results. It was first performed by me on August 1, 1872, with a successful result. I am, therefore, entitled to have this operation described by my name.

3. Removal of the appendages for organic disease, chiefly chronic inflammatory change, such as pyosalpinx, hydrosalpinx, hæmatosalpinx, and chronic ovaritis with adhesions. This proceeding I practised first on February 11, 1872, with a successful result, and since then hundreds of women have, by its means, been relieved from suffering otherwise incurable, and many have been saved from impending death. This operation also deserves to have my name attached to it.

I cannot too strongly insist that the principles on which the operations are founded are wholly different in the three classes of cases; that the details of the operations differ wholly in the three cases from the moment the peritoneum is opened; and, finally, that their methods of recovery and convalescence are wholly different and distinct.

EXCISION FOR CHRONIC DISEASE OF THE SHOULDER-JOINT.[1]

By LEROY W. HUBBARD, A.M., M.D.,
of New York.

There are two facts in relation to shoulder-joint disease which must impress themselves, it seems to me, upon the mind of every student of orthopædic surgery. First, its extreme rarity as compared with chronic disease of the other major articulations, especially those of the lower extremity. Secondly, that while spinal, hip, knee, and ankle disease occur most often in young children, and about as frequently in one sex as the other, disease of the shoulder-joint, of a similar character, on the other hand, generally is met with in youth or adult life; and the number of males affected far exceeds the females.

The first proposition is so self-evident that it scarcely needs proof. The reports of Guy's Hospital show that disease of the shoulder-joint constitutes less than one per cent. of its cases of joint disease; and I am sure the records of our own institutions would not present a larger percentage. In support of the second, I may mention the report of Culbertson upon excision of the shoulder, in the *Trans-*

[1] Read before the New York Orthopædic Society, January 4, 1886.

actions of the American Medical Association for 1876. He collected the records of ninety-five cases of excision for shoulder-joint disease, covering a period from 1768 to 1876. Of these ninety-five cases, only seven were under ten years of age, the age of thirteen was not reported, and the age of the majority of the remaining was over twenty years. Moreover, sixty-nine of the ninety-five were males. I have not been able to find a satisfactory explanation of these somewhat remarkable facts. It is evident that the theory of traumatism alone or better protection from cold will not explain them. Clearly, the shoulder is as much exposed to cold as the hip, and dislocations of the joint, sprains, fractures of the humerus near the joint, fractures of the clavicle, etc., produced by severe traumatism, direct and indirect, are not uncommon either in children or adults. The testimony of authors is that acute synovitis of the shoulder, either traumatic or rheumatic, is rarely followed by chronic joint disease.

Perhaps when we better understand the etiology and pathology of chronic joint disease we may arrive at a correct solution of the questions involved. The experiments of Rosenbach, Kœnig, and others, whose results have not been published, establish the fact that in the majority, if not all cases, chronic joint disease is tubercular in character. While the bacillus tuberculosis cannot be demonstrated in every case, yet it has been often found and pure cultures have been made, which have produced tuberculosis when inoculated upon healthy animals. Indeed, the evidence is so strong that I am convinced that the presence of the bacillus tuberculosis is almost a *conditio sine qua non* for the development of chronic progressive arthritis. Although this theory may not be accepted as proven, one thing is certain: viz., that, as a rule, whether the disease begins in the synovial membrane or in the head of the bone, its tendency is toward a progressive retrograde metamorphosis, and unless the morbid process is checked by the conquering vitality of the tissues, or is destroyed by operative interference, complete disintegration of the joint will result. There are, undoubtedly, some cases of disease at this articulation, as at others, where the process is a slow one, and seems to limit itself; and while there is no extensive destruction of tissue, the functions of the joint are never perfectly restored. When the disease begins in the head of the humerus in adult life, and I have shown that the majority of cases belong to that period; the epiphysis having been united to the shaft, the morbid process tends to invade this portion of the bone also.

The disease here, as in other joints, is insidious in its onset and slow in its development. While, in many instances, there is a distinct history of traumatism, it may appear without any known cause. The symptoms following the traumatism may disappear, to be followed after weeks or months by others. Whether there has been a traumatism or not, usually the first symptoms which call the patient's attention to the shoulder are slight pain accompanying limitation of motion, or what the patient calls a "stiffness" especially marked in the morning. He may perhaps notice a slight swelling around the joint. Rheumatism is often suspected, and the patient either "doctors himself" with home remedies or calls upon his family physician.

The symptoms are so vague and obscure to one who has not had much experience with joint disease that a mistake is easily made, and rheumatism, a wrench, or some slight cause, is made to explain the phenomena present. Before long, however, the signs of the trouble become more clear and "he who runs may read." The stiffness increases, until there is practically no motion at the joint, pain becomes a severe and constant symptom, the muscles around the joint, especially the deltoid, atrophy, and the bony prominences stand out in bold relief. Generally, sooner or later, a fluctuating swelling with varying symptoms appears, which finally opens, discharges a quantity of thin flaky or curdy pus and leaves behind a sinus. In the meantime, the general health begins to suffer; the patient loses his appetite, emaciates, and possibly has slight chills followed by fever and sweats. The exhaustion which this condition produces prevents him not only from earning a livelihood, but soon confines him to bed.

Occasionally one is fortunate enough to see a case in the early or prodromal stage of the disease, but usually the advice of the surgeon is not sought until some period of the late stage is reached.

Discarding as irrational and useless some of the procedures once recommended for this trouble, viz., blisters, cauterization, setons, etc., the treatment of shoulder-joint disease may be included under two heads. First, the conservative method; secondly, the operative. By the former, an attempt is made absolutely to protect the joint from injury by some form of apparatus which will immobilize it, and, if possible, produce some separation of the joint surfaces, while nature cures the disease by restoring vitality to the tissues; by the second, the object sought is a cure of the difficulty by removal of the diseased structures.

The advocates of the first method claim that it is conservative, that an operation, something so much dreaded by everyone, is thereby avoided, and that it is perfectly safe. The advantage claimed by the first two propositions I grant, but must deny the last. If this disease is tubercular in character, and has a strong tendency to progress, involving the structures around the joint, may it not easily become a focus of infection from which tuberculosis may be conveyed to such vital organs as the brain and lungs? If this danger appears to exist more in imagination than in reality, though the post mortem soon furnishes proof of it in cases of other joint disease, we all must be aware of the danger of amyloid degeneration of the liver and kidney from prolonged suppuration.

As a matter of fact, we know that tubercular meningitis, acute tuberculosis, and the various forms of amyloid degeneration carry off many of our patients suffering from chronic disease of the other joints.

I am aware that some excellent results have been obtained by various forms of apparatus and, if a case is seen early, where there is a chance of aborting the disease, or if it is a case which has progressed

slowly with little destructive tendency, the conservative method should be tried. But, in the majority of instances, we do not see these cases until the disease has well advanced, and it is here that delay is dangerous.

Owing to the loose muscular attachments of the shoulder to the trunk, it is difficult to fix the joint or produce extension by any apparatus which can be worn comfortably by the patient, and even if this can be accomplished, the patient must receive constant care for weeks or months, at the hands of the surgeon. Moreover, even after this long and expensive course of treatment, a complete and perfect restoration of motion to the joint cannot be promised, and there is constant danger of a return of the disease from a subsequent traumatism. The negative evidence in favor of excision is, therefore, very strong in the majority of cases.

But we are met at the outset by the objection that excision is a serious and dangerous operation, and therefore it ought to be resorted to only when life is in danger.

That excision of the shoulder is a serious operation, and requires a certain amount of anatomical knowledge and technical skill on the part of the operator, I admit, but that it is a dangerous operation I am disposed to deny.

Among the 95 cases referred to, 14 deaths are reported. In 6 phthisis was the cause, occurring from three months to one year after the operation; one patient died of variola, and one of amyloid degeneration of the liver, three and one-half months after. The remaining 6 deaths may, perhaps, be attributed directly or indirectly to the operation. Of these, 2 died of pyæmia, 1, a man sixty-five years of age, of exhaustion, 1 of pleuro-pneumonia, 1 from uræmia, and 1 from diarrhœa. 6 out of 95, or about 6 per cent. If we examine the results as regards the usefulness of the limb, we find that 52 of the number are reported as having perfectly useful limbs, while of the remaining 37, only 2 had useless arms, the others being able to perform, more or less well, all the functions belonging to a sound limb. It must be remembered that these statistics cover a period of over one hundred years, during sixty of which, anæsthetics were unknown; also that none of the operations was performed in the careful and thorough manner, with the same attention to asepsis, employed by the best surgeons of to-day. Our results at the present time ought to be much more favorable both as to mortality and the usefulness of the limb.

If the operation, therefore, is reasonably safe, and ultimate good use of the limb can be assured, it is clearly advantageous to perform it early, or at least as soon as all hope of arresting the progress of the disease is abandoned. Time, an important element in most instances, is thereby gained. Moreover, by operating early, the general health of the patient being unimpaired, a more speedy and favorable recovery is probable. Again, it is important to operate before there is extensive destruction of bone and periosteum, for, as a rule, the less bone removed the more favorable will be the result, so far as the restoration of function of the limb is concerned. Lastly, the difficulties and dangers of the operation are much less when the soft tissues are in a healthy condition, and the periosteum can be easily separated from the bone.

The advantages of the operation over the conservative method, in every case except where the disease is in the early stage, may be summed up as follows:

First, the probability of as good, if not better restoration of the function of the limb.

Second, the shorter time that will elapse before the patient will be able to use the limb.

Third, the immediate improvement in general health which follows removal of the diseased tissue.

Fourth, the removal of a possible source of general infection without causing any deformity, or preventing the patient from engaging in the ordinary pursuits of life; objections which are strong against the excision of the joints of the lower extremity.

Only a brief mention of the details of the operation is necessary here, as they are found in every text-book on surgery. The straight incision, beginning just below the acromion and carried downward and outward along the inner border of the deltoid, will be the most useful in the majority of cases, affording complete access to the joint, and leaving a favorable wound for repair. A subperiosteal operation should be done in all cases possible, and as soon as the periosteum is divided, all the subsequent work can be done with a blunt dissector. Careful attention to asepsis in all its minute details should be observed. Only the diseased bone should be removed, and it is better to make several sections than to remove too much at once. If the glenoid cavity is diseased, it must be thoroughly scraped till healthy bone is reached. Free drainage is secured by a large tube, passing deeply into the cavity of the joint, and out at the lower angle of the wound. Any dressing may be used, provided it is thick and strictly aseptic. Splints are unnecessary, as the arm may be firmly confined to the side by turns of a roller bandage. There should be but little febrile reaction, and, as a rule, the first dressing may be left on a week or ten days; at the end of that time, the wound will probably have completely healed, except where the drainage tube projects, which may now be removed. At the end of another week, passive motion may be begun, together with electricity, massage, douching, etc., to the wasted muscles. Very soon light exercises may be performed, which may be gradually increased until, in two or three months, the surgeon may expect to see all the functions of the joint restored, except the ability to raise the arm above the head.

In conclusion, I will add a brief report of a case which came under my care while an interne in Bellevue Hospital. This case illustrates some of the points I have tried to bring out in the preceding remarks.

A. W. æt. twenty-two, an American, was admitted to the hospital July 21, 1884. Family history good, and previous to present trouble had always enjoyed good health and been able to do hard work. About two years previous to admission, while employed in the woods, he attempted to throw an axe at a distant object, but the

blade caught upon the limb of a tree behind him, producing a severe wrench or sprain of the right shoulder. Some pain, swelling, and disability followed, but the symptoms subsided and he went about his work as usual, though he noticed the joint was a little stiff in the morning, and after a time the muscles began to waste. This accident was followed a year later by a fall upon his right elbow. Now he was unable to use the arm, the stiffness increased to practical immobility, and after a few months a swelling appeared, which was opened and discharged pus.

His case was diagnosed as rheumatism, a strain, etc., and favorable prognosis given. For the last few months he had lost flesh, been unable to work, and suffered almost constant pain. The appearance of the man indicated long-continued suffering; he was pale and emaciated, carried his right arm close to his side, supporting the forearm with the other hand, and was unable to dress or feed himself. Examinations showed extreme atrophy of the deltoid and other muscles, and the presence of a small sinus on the inside of the arm about two inches below the axilla, through which it was impossible to touch dead bone with a probe.

All attempts at motion in any direction were resisted by reflex spasm and gave great pain. He was put upon tonic treatment for a few days, and on July 30th, assisted by Dr. J. W. Wright, the visiting surgeon, and by members of the house staff, I excised the shoulder. The skin in the neighborhood of the joint was carefully cleansed and disinfected with a solution of hydrarg. bichlor. 1 : 2000, and irrigation with this solution was continued during the whole operation. Four inches of bone were removed in sections before healthy bone was reached. The glenoid cavity was found to be diseased, and was thoroughly scraped. The hemorrhage, which was slight, was entirely controlled and the incision closed with a continuous catgut suture, after two large drainage tubes had been placed in the cavity of the joint. The sinus mentioned was in such close proximity to the large vessels that it was not deemed safe to open it throughout its entire extent, and it was therefore scraped with a sharp spoon and washed with the bichloride solution. The dressing consisted of iodoform, carbolized gauze pads, and borated cotton. The arm was confined to the side, with the forearm across the chest, by turns of a roller bandage.

The patient never complained of pain after the operation, and although he had some febrile reaction for a few days, the result proved that it was not due to the condition of the wound. The first dressing was removed fourteen days after the operation, when complete union by first intention, without a drop of pus in the dressing, was found to have taken place throughout except where the drainage tube projected. This was removed and in ten days union was complete, and the sinus also was perfectly closed. Passive motion was then begun, and electricity, massage, douching, etc., were applied to the wasted muscles. September 19, fifty days after the operation, he was discharged from the hospital, having been using light exercises for several days, able to dress and feed himself, and having gained fifteen pounds in weight.

In December of the same year he began to work in a planing mill and has ever since earned the same wages as the other men, supporting a wife and family.

I saw the patient December 5, 1885, and found about one and a half inches shortening of the limb with one and a quarter inches less circumferential measurement as compared with the opposite side. The muscles were fairly well developed, and he told me he had a few days previously lifted seventy-two pounds with the right arm. All the motions were good except the ability to raise the arm out from the body when extended at the elbow.

This disability seemed to be due to the fact that so much bone had been removed that the fulcrum of the lever was lost, and not to deficiency of power in the deltoid. If the operation could have been performed earlier before such extensive destruction of bone and periosteum had taken place, I am confident the result would have been much better.

130 WEST TWENTY-FIRST STREET.

BRAIN OF A DEMENT WITH NUMEROUS CALCAREOUS DEPOSITS SCATTERED THROUGHOUT BOTH HEMISPHERES AND CEREBELLUM.[1]

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THE patient was a woman, aged about forty-five or fifty years. She suffered from dementia interspersed with brief periods of excitement. The latter, however, did not differ from such as are frequently present in patients in whom no lesions similar to the ones about to be described are found. She also had phthisis.

The autopsy was held about seventeen hours after death. The calvarium was rather thicker than normal, though the dura presented nothing unusual. The pia and arachnoid, however, presented opacities and thickening over the entire surface of the brain. The lateral ventricles were somewhat dilated. The velum interpositum was thickened, and the choroid plexuses pale and cystic. On making section of the brain, the knife came in contact with hard calcareous particles, scattered through the substance of the hemispheres; they varied in size from a quarter of an inch or more in diameter, to scarcely appreciable sand-like fragments. They were largest and most numerous in the regions supplied by the nutrient branches of the Sylvian arteries—*i. e.*, the internal capsule, the head of the caudate nucleus, and the lenticular body. Toward the cortex they disappeared altogether. An examination of the cerebellum revealed similar bodies scattered in and about the dentate bodies of both lobes.

Examination of the lungs revealed extensive tuberculosis, phthisis being the immediate cause of death. No calcification of the tubercles had taken place. Examination of the heart did not reveal any calcareous deposits either in the valves or great vessels. The kidneys were not sclerosed.

A number of the calcareous particles found in the brain were removed from the tissue in which they were embedded and were then decalcified. Sections were cut and mounted as usual. The microscope revealed an enormous mass of irregular bodies, which were, for the most part, more or less cylindroid in shape. They were gnarled and twisted, and so densely packed that in some instances their nature could only be determined with difficulty. They proved to be vessels, the walls of which were much thickened, and in which extensive deposits of lime salts had taken place. In many instances the lumen of the vessels could readily be distinguished; in others again, the lumen was entirely obliterated. In most

[1] Read before the Pathological Society of Philadelphia.

cases it was exceedingly small. The process of calcification had, evidently, taken place throughout the walls of the vessels; though some of the smaller ones presented a mammillated appearance, as though the deposit had been in the form of an incrustation on the outer wall.

The tissue between the vessels, and, also, that surrounding the nodules, showed an extensive proliferation of nuclei. No undoubted evidence was present of any direct calcareous deposit in the neuroglia, or in the true nervous elements. It is not improbable, however, that some of the smaller masses represented the calcified detritus of softened nerve tissue, but in almost every instance a more or less distinct vascular form could be made out. The most striking appearance under the microscope, was the enormous number of the vessels, but at the periphery of a nodule they would thin out and frequently presented dilated lymph-spaces.

The examination of the cortex also revealed a marked increase in the number of vessels and a general proliferation of the neuroglia. The most noteworthy point, however, was the shrunken appearance of many of the ganglion cells, together with a great dilatation of the pericellular spaces.

Although calcareous deposits are known to take place in the falx, the tentorium, the dura, the pia, the main cerebral arteries, and even in the choroid plexuses, cases like the one described appear to be extremely rare. In 1850, Delacour[1] described a case of imbecility, in which small, hard, rough masses were found scattered throughout the centrum ovale. They were more especially noticed in the regions of the striated bodies, in the centre of each of which a hard substance, the size of a bean, was found. Delacour correctly interpreted these appearances as being due to the calcification, here and there, of the smaller vessels. The principal trunks were not affected. It is also of great interest to note that no calcareous deposits were observed in other portions of the body. This case, therefore, closely resembles the one before us.

In 1852, Rainy[2] reported the case of a man who had died of inflammation of the hand "with purulent absorption." No symptoms of brain disease had been noticed during life, but on making sections of the brain, sharp spicula or bristle-like projections were discovered on the cut surfaces. They were, evidently, ossified vessels. The trunks of the smaller ones were of their natural size, but the minutest ramifications and the capillaries were much enlarged and altered in appearance, looking more like globules of oil joined together, than like bloodvessels. This appearance, judging from Rainy's illustration, closely resembles that observed in some of the vessels in the present case—the mammillated appearance already mentioned.

Again, in 1855, Bamberger[3] described the case of an epileptic dement, in which the smaller vessels of the brain were converted into a long, brittle framework, and which projected like so many wire points from the cut surface. Besides, in the corpora striata were found foci filled with yellow, stony conglomerations.

In 1856, Virchow[1] likewise described a case of dementia in which he found extensive calcification of the smaller vessels of the white matter of the brain. On section they stood out like bristles. Virchow explains this case as being one of metastatic deposit, there being marked atrophy of the cranial bones, as well as arthritis deformans.

In 1863, Marcé[2] reported a case of complete dementia, in which the brain had undergone much disintegration from bloody infiltration, and in which the cut surface felt rough, like the tongue of a cat. The calcareous deposits were, for the most part, aggregated and quite large. The capillaries appeared as though incrusted.

In 1866, Hubrich[3] reported two cases, both dementia, in which bristle-like projections were noticed on the cut surfaces. They were found variously in the general white matter, the corpora striata, the optic thalami, cerebellum, etc. They could, in some instances, be drawn out of the tissue in which they were embedded, ranging at times from a half to three-fourths of an inch in length. Their nature was, of course, apparent.

Of the above cases, which are the only ones thus far reported, that of Delacour resembles, most closely, our own. In his specimen, he found merely nodules of calcareous material. He makes no mention of the bristle-like appearance described by the other writers. This, it will be remembered, is also absent in the brain before us. Bamberger, on the other hand, records both lesions. He describes both the hard nodules, and the bristle-like appearances. In the other cases, five in number, the nodules were absent, the bristle-like appearance alone being present.

Evidently, we have here two lesions which are closely allied. The difference between them we find to be more apparent than real, especially when we come to consider the probable method of their formation. Rokitansky, in his admirable *Lehrbuch der Pathologie*, 1856, vol. ii. p. 472, in giving a general description of calcareous deposits in the brain, based on Bamberger's case, explains them by supposing an encephalitis, in which the nervous elements disintegrate and become calcified; also that there is a sheath-like incrustation of the vessels. I believe this supposition to be, in the main, correct, and it accords most happily with what we know of the lesions of dementia in general. In the case just described, for instance, we have the general meningo-encephalitis so common in dements, and which is evidenced by the condition of the pia and arachnoid, and by the general increase of the neuroglia. The areas in which the concretions were found were probably foci of encephalitis, of greater intensity than elsewhere. In these foci, inflammatory changes in the walls of the vessels became pronounced, beside which, the vessels increased enormously in size and number; so marked is this increase, that these foci could, with perfect propriety, be called angiomata. At the same time, proba-

[1] Gazette des Hôpitaux, Paris, 1850, ii. 107.
[2] Trans. Path. Soc. London, 1852-53, iv. 117.
[3] Verhandl. d. phys med. Gesellsch. zu Würzburg, vi., 1855; also cited by Rokitansky, Lehrb. d. path. Anatomie, ii. 474, 1856.

[1] Archiv, ix. 4. p. 620, 1856.
[2] Bull. Soc. d'Anat. de Paris, 1863, xxxviii. 468.
[3] Zeitschrift f. Biologie, Munich, 1866, ii. 377.

bly, the neuroglia underwent proliferation, and a corresponding destruction of nerve tissue ensued. Then, doubtless, the calcareous deposit took place. Why such deposit should have taken place in the brain and not elsewhere, is, of course, a matter for speculation.

In regard to the five reported cases in which no nodules were found, the encephalitis, no doubt, lacked a focal character. The lime salts were simply deposited in a diffused manner in the inflamed walls of the arterioles and capillaries.

MEDICAL PROGRESS.

DIAGNOSIS OF SACRO-ILIAC INJURIES.—DR. E. A. LEWIS, in the *Medical Analectic*, condenses as follows the points of diagnosis in injuries of the sacro-iliac articulation:

1. History of case: Rotation of the pelvis under severe pressure, or any force acting as a wedge between the sacrum and innominate, may injure the articulation without complete separation and deformity. 2. Symptoms usually associated with those of contusion of the hip differing in this: the slightest lateral pressure on the pelvis is unbearable. 3. Patient is able to be assisted to the erect posture and walk, with crutches, sometimes before he can lie on either side. 4. Great length of time before patient can walk with comfort, and frequently permanently incapacitated for active work. 5. The uninjured side is used as a pivot upon which to swing the pelvis and thus save the strain on the affected articulation. The foregoing points in diagnosis are prominently stated. The results may be permanent defect in walking, and weakness of the articulation.

Points in Differential Diagnosis.

Contusion.	*Injury to Sacro-iliac Articulation.*
Cause: a direct blow or fall.	Cause acts as wedge between sacrum and os innominatum, or rotates the pelvis under severe pressure.
Thigh of affected side will not render passive motions.	Thigh of affected side may be freely used without causing pain.
Patient can be turned or turn after short time without causing severe pain.	Patient cannot turn nor be turned on either side for a long time, and can walk about some before being able to endure any lateral pressure.
Patient suffers pain in soft parts surrounding the hip-joint.	Patient suffers no pain when lying quietly on back, unless the injury is accompanied by contusions.
Patient recovers completely in a few days, or, at most, weeks.	Patient does not recover for months, and frequently the injury is permanent.
There is apt to be ecchymosis and tenderness on pressure over the soft parts.	There is no ecchymosis, and pain on pressure is only felt when the force is applied to the bony pelvis, and then at the seat of injury—*i. e.*, the articulation.

The explanation of the symptoms of pain on lateral pressure and ability to stand erect and walk is explained by the angle of the pelvis (60 to 65 degrees), so that pressure from above or below brings the articular surfaces closer together, and does not bring any strain on the ligaments. Lateral pressure, on the other hand, separates the articular surfaces and puts the ligaments on the stretch.—*St. Louis Med. Review*, April 10, 1886.

TEST OF THE QUALITY OF COCAINE.—The *London Medical Record* states, on the authority of the *Pharmaceutisch Weekblad*, that the presence of hygrine and egonine in the hydrochlorate of cocaine may be detected by treating the salt with cold concentrated sulphuric acid. If the salt is pure, the result is a completely colorless solution. The impurities will stain the solution.

PALLIATIVE TREATMENT OF UTERINE CANCER.—DR. GACHES SARRANTE, in an article on the treatment of inoperable uterine cancer, thus summarizes the results of his experience.

In cancer of the uterus, frequent dressing with liquids, powders, or other antiseptic agents presents the following advantages:

1. When regularly applied, they suppress absolutely the hemorrhages, even when rebellious.

2. They modify the nature of the lesion by removing the putrescent products which form on its surface, and give it the appearance of a healthy sore.

3. At first they calm the pains, which later return with increased intensity, finally to cease definitely.

4. They prevent the absorption of infectious products and thereby greatly improve the general health of the patient.

5. They moderate the extension of the lesion, and prevent extension by contiguity to the vagina and bladder.

6. Finally they permit the patient to live the life of the world at large, and, so to speak, to dissimulate their malady.—*Nouvelles Arch. d. Obstet. et de Gynéc.*, March 25, 1886.

IODIDE OF POTASSIUM IN SPASMODIC ASTHMA.—DR. ORMEROD has tabulated the details of thirty-six cases of spasmodic asthma treated by the internal administration of potassium iodide, and expresses his results as follows:

The iodide was given alone, or if in combination only after the effect of the uncombined drug had been watched. It proved a failure in nine out of the thirty-six cases—*i.e.*, only in twenty-five per cent. Its good effects were not limited to the uncomplicated cases. The cases in which the asthma appeared to be distinctly secondary to chronic lung disease are indeed too few to say much about; but in some of them at least it did good. The symptoms most amenable to the drug were certainly the nocturnal attacks of dyspnœa: its effect on them was often remarkable; thus in many cases they disappeared altogether; in others they were much reduced in frequency and severity. But a troublesome cough, or a certain shortness of breath on rising in the morning, often persisted. That the nocturnal attacks were really controlled by the iodide was shown by the unwelcome, but noteworthy fact, that they recurred (in many cases) whenever the drug was stopped. It has, therefore, the effect of relieving rather than curing. Five or ten grains three times a day suited best in most cases; in some a larger or smaller dose did better. In some an increase of the dose did good for a time, but the effect seemed to wear off.—*The Practitioner*, April, 1886.

Drainage of Idiopathic Intracranial Abscesses. —The evacuation of traumatic abscesses of the brain has long been a recognized procedure, and has met with a fair measure of success. Recently Mr. Hulke has endeavored to extend this practice to idiopathic abscesses within the cranium. A few months ago a man was admitted into the Middlesex Hospital, under Dr. Cayley, suffering from coma, which had supervened upon a long standing purulent discharge from the ear. There were no localizing symptoms. Mr. Hulke trephined the skull in the lower part of the temporal fossa, and by means of a director explored the temporo-sphenoidal lobe, without result. The operation was unattended with ill-results, but after the patient's death, a few days later, an abscess was found in the cerebellum. Quite recently a woman was under Dr. Cayley's care with similar history and symptoms, and intracranial suppuration was diagnosticated. Mr. Hulke determined to explore the brain. In this instance he made an aperture in the cerebellar fossa of the occipital bone, and through a small incision in the dura mater he passed a director through the cerebellum in all directions, but without striking an abscess. Finding that the symptoms were unrelieved, he subsequently trephined the temporal fossa, and opened an abscess in the temporo-sphenoidal lobe. We believe these cases will be duly reported to one of the medical societies. They mark an important advance in cerebral surgery, but further comments upon them must be deferred until all the facts are before us. —*The Lancet*, April 10, 1886.

Diet in Albuminuria.—After passing in review the principal theories which have been given regarding the pathogenesis of albuminuria, Nollet offers the following conclusions:

1. Milk diet has as yet given the best results in the treatment of albuminuria.

2. This method is not applicable to all forms, and if too prolonged may produce serious inconveniences for the patient.

3. The albuminuric should avoid large meals, eating frequently, but little at a time.

4. Individual susceptibility must determine the sorts of animal food least injurious to the patient.

5. Fish appears to favor the passage of albumen into the urine.—*Gaz. Méd. de Paris*, March 6, 1886.

Toxicity of the Urine in Puerperal Eclampsia. —M. Doleris has found that some specimens of the urine of patients with puerperal eclampsia give, on drying, crystals the composition of which is at present undetermined, but which are slightly soluble in alcohol and soluble in acidulated water, and a somewhat concentrated solution of which injected into animals killed a rat and three sparrows, while comparative experiments made with a portion of solution containing no crystals produced no effect. M. Doleris found a normal amount of urea in the blood of two patients dead of the disease, but an increased amount in that of two others who were cured. In one case only were soluble and toxic ptomaines met with. He believes that puerperal eclampsia is of an infectious nature, for it is not only the kidney which is affected, but other organs—the liver in particular presenting characters more or less allied to those noted in acute yellow atrophy.—*Lancet*, March 13, 1886.

Morphiomania. — Dr. Marandon de Montyel summarizes the results of his investigations of the production of morphiomania as follows:

1. Morphiomania has its origin either in a demand for intellectual excitation and psychical pleasure, or in the acquired habit.

2. Injections of morphia have as a result a double action: a benign and a special action upon the nervous system by which its natural function becomes impossible after a certain term without the assistance of the poison. These two effects are separate and distinct from each other: the second is manifested when the first is no longer exhibited. There are, then, two kinds of morphiomania; the one resulting in a temporary good effect, the other a vital necessity; and after a variable period the cases of the first order pass over into the second.

3. This double action of morphia upon the nervous system renders it an extremely dangerous medicament, and it therefore should not be prescribed hypodermatically except in cases of absolute necessity.

4. It is also extremely dangerous to combat morphiomania by the substitution of alcoholics, inasmuch as chronic alcoholic insanity may result therefrom.

5. Morphiomania may always be treated by abrupt withdrawal of the drug, except in conditions when such methods are contraindicated by the vital forces of the patient or concomitant pathological phenomena. The method should also be abandoned if reactionary collapse result.

6. In the treatment of morphiomania by gradual suppression of the drug, it appears advantageous to combine with the progressive diminution of the dose the recoil of momentum by fusing two injections into one.

7. The medico-legal questions pertaining to morphiomania are certainly based more upon extra-judicial than upon judicial clinical observation.

8. Observation shows that a morphiomaniac may have great energy of will while the poison has not yet determined any disorder of intellect. There is here a serious proof of what has already been said, that responsibility only ceases with the period of psycho-physical marasmus.

9. Relative to the responsibility of morphiomaniacs who commit crime or offences to satisfy their passion, it is, perhaps, necessary to distinguish whether they have yielded to the simple appetite for a pleasant effect, or to a physical necessity dependent upon the instinct of self-preservation. A conclusion of irresponsibility in the latter case seems justified.

10. In the exact appreciation of the intellectual troubles caused by the abuse of the hypodermatic injection of morphia, it is important correctly to appreciate the existence of predisposition to insanity, and the delirium produced concurrently by the absorption of other substances, such as alcohol and belladonna.

11. It is necessary to retard the continual progress of morphiomania by disseminating general information in the upper ranks of society concerning the deplorable and certain evil effects following the use of the drug, and to exercise an active surveillance over pharmacists, and impose special penalties upon those who dispense morphia without a physician's prescription.—*Canada Lancet*, April, 1886.

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SATURDAY, APRIL 24, 1886.

THE MEDICAL TESTIMONY IN THE LAVERTY CASE.

IMPOTENCE has not infrequently been the question at issue in legal proceedings from the time of the suits of the Countess of Essex and the Marchioness de Langley, in the sixteenth and seventeenth centuries, to the present day. Happily it is becoming more and more rare as a cause of litigation, and the tests, which in those days were applied under order of the Court, are now recognized as both indecisive and revolting. There are, however, still instances in which it is the turning point of civil or criminal actions—the ground for divorce, the defence in rape, etc.—and its probable existence as a physical defect can now fortunately be determined with a much nearer approach to scientific accuracy than ever before.

Sexual potency in the male depends upon the presence of three factors, an emotional or cerebral centre, a reflex or spinal centre, and a peripheral nerve supply, susceptible to the influence of the ordinary stimulation of warmth and friction. If, in consequence of brain disease, or of spinal injury or exhaustion, or of deformity or abnormality of the penis, any one of these requisites is absent, impotence is the almost certain result, and, accompanying it, sterility, or the inability to procreate. When, in addition to such a cause, there exists a mechanical obstacle to the ejaculation of semen, or a condition affecting the physiological formation of the latter secretion, the probability of the two genital derangements—impotence and sterility—being associated in the case is immensely increased.

Thanks to the researches of Lallemand, Liégois, Curling, Black, S. W. Gross and others, there are certain well recognized facts bearing upon the subject, that may be stated somewhat dogmatically. By far the most common cause of impotence is chronic inflammation of the deep urethra, which by its long continuance exhausts the reflex excitability of the lumbar centre; the most frequent cause of this chronic urethritis is organic urethral stricture. When these conditions exist in any case, especially if they have been of long continuance, there is a reasonable presumption of impairment or failure of the genital function, as at least five-sixths of all cases of impotence are due to these causes. If, superadded, there are evidences of disease of the rest of the genital apparatus, such as chronic prostatitis, obstruction of the epididymis, vas deferens, or ejaculatory ducts, degeneration of the secreting structure of the testicles or other similar lesions, the presumption becomes greatly strengthened, particularly if the clinical history furnishes confirmatory evidence.

A case which has just been undergoing trial in a neighboring State, has afforded the latest opportunity for expert evidence on these points: Laverty, keeper of the New Jersey State Prison, was impeached before the Senate of New Jersey for official misconduct, the gravest of the charges against him being that he committed adultery with certain female convicts, who testified that he was the father of their children. With the collateral testimony we have nothing to do: the management or mismanagement of the prison; the opportunities for impregnation of these witnesses by intercourse with other convicts, etc.; but the medical testimony in reference to the impotence of the defendant is unusually interesting. From the stenographic reports of the trial we learn that the following evidence was submitted:

Laverty, who is fifty-six years of age, has been married for thirty-two years, and was the father of eight children, when, in 1872, he was operated upon for an impacted urethral calculus, the operation being followed by double swelled testicle, prostatitis, and excessive urethral hemorrhage, with all the evidences of extensive inflammation of the parts involved. An examination made during the trial by Drs. Agnew and White of Philadelphia, disclosed the following conditions now existent: 1st. A dense, fibrous stricture of the urethra, situated from five to six inches from the meatus, admitting with great difficulty one whalebone filiform bougie, a second failing to pass alongside it. 2d. An extremely hyperæsthetic and inflamed condition of the urethra necessitating the administration of ether for the completion of the examination. 3d. An enlarged, hardened, and tender prostate, the irregular character of the enlargement, the tenderness, and the age of the patient, indicating that the increase in size was probably due to inflammation and not to senile hypertrophy. 4th. An indurated mass in each testicle, the size of the terminal phalanx of the little finger, occupying the region of the globus minor and indi-

cating an old double epididymitis. 5th. A decrease in size—a commencing atrophy—of the right testicle with softening of both it and its fellow.

Upon these results of their examination these medical witnesses testified that they believed it probable that the defendant was both impotent and sterile; that the long-continued urethritis had probably had its common effect of exhausting the spinal centre; that, even if erection were possible, the mechanical obstacle to ejaculation and to complete distention of the erectile tissue offered by the dense, almost impermeable organic stricture would probably cause enough pain to compel him to desist before the completion of the act; that the double epididymitis, by obstructing at that point, on each side, the single outlet from the testicle; that the chronic inflammation of the prostate by causing deviation or obliteration of the ejaculatory ducts; that the changes in the substance of the testicles themselves, indicating a corresponding change in the character of their secretion, all pointed unmistakably in the same direction. They testified, also, that each of these conditions is well known as a competent cause of impotence or sterility, and that their association in the same individual greatly increased the probability of the existence of these genital defects.

The chief medical witness summoned by the prosecution in rebuttal, basing his evidence on the stenographic report of that given by the foregoing medical witnesses, testified that, in his opinion, their conclusions were not warranted by the results of their physical examination, and that he believed the defendant to be capable of the sexual act. When asked whether or not he thought a man with tight urethral stricture, double epididymitis, enlarged prostate, and disease of both testicles, was likely to be competent to perform the sexual act, he said he could not answer without having made an examination—thus admitting that an examination was essential to forming a correct opinion of the case. He did not consider the statement that chronic inflammation of the deep urethra was a fruitful cause of impotence, as intelligible, because he did not understand what was meant by "deep urethra." This, perhaps owing to the great etiological importance of inflammation at this point in its relation to impotence, was the pivotal point of the whole medical testimony of the defence. The term is now used constantly by surgeons, and is found in the works of Van Buren and Keyes, Bumstead and Taylor, and others. He stated, in opposition to the previous witnesses, that the calibre of the urethra is largest when the organ is erect, an important point in the consideration of possible ejaculation in such conditions. Curling, Gross, and other authorities describe it as narrowed during erection, and the increased difficulty of urination or of the passage of instruments during that condition, is familiar to most practical surgeons. He drew a distinction between strictures composed of cicatricial tissue and strictures resulting from urethritis, although it is a well known pathological fact that all organic strictures are made up of cicatricial tissue. He did not know of any cases in which prostatic induration and enlargement had interfered with the procreative powers, although such cases are reported in many of the surgical text books. He denied that double epididymitis frequently produces sterility, although it is usually regarded as one of the most common causes of aspermatism. For instance of eighty-three cases collected by Curling, in only eight did the spermatozoa reappear in the semen. He stated that it was not possible that a dense fibrous stricture of a calibre of only 3 mm. could cause such pain during an attempt at intercourse as to prevent a completion of the act, though Gross and other surgeons report cases of that character. He testified that all strictures are curable, and that he had never met with one which he had failed to cure, although many surgeons of large experience believe that strictures are essentially incurable. Dr. Agnew, for example, says in his *Surgical Treatise*, "the radical cure of stricture is entirely beyond the reach of surgery."

After carefully sifting and balancing the conflicting testimony, the weight of authority on these controverted points is without doubt strongly in favor of the views advanced by Drs. Agnew and White. If, in addition, it be permissible to accept as credible the testimony that the wife of the accused had never been pregnant since the date of the operation spoken of, though previously the mother of eight children, and her sworn statement that for years and in spite of frequent ineffectual attempts he had never succeeded in effecting an entrance—if all these circumstances are considered, or even if the results of the physical examination alone are accepted, there can be no reasonable doubt of the possible influence of these conditions in producing impotence or sterility, or both, and they appear to fully justify the conclusions reached by the medical witnesses for the defence.

The case, however, has other lessons than those derived from its relations to disease and infirmity. As will be seen by our abstract of the testimony, it has furnished another unnecessary example of the public disagreement of witnesses called as experts, which tends to bring discredit upon that class of evidence. The possible effect of such contradictions upon the mind of judge and jury is obvious, and might readily lead to a miscarriage of justice. We say this without reference to the outcome of this particular trial, which will be concluded before this is published, but for the sake of bringing an important practical point definitely before the profession, in the hope that they will use their influence to have the law of

expert evidence so changed that experts shall be summoned as witnesses of the court, rather than of the prosecution or defence.

DIFFERENT METHODS OF TREATING THE VOMITING OF PREGNANCY.

The question, How do you treat the vomiting of pregnancy? is frequently asked by one practitioner of another. Certainly if the physician has a theory of the etiology of the affection, he can readily give an answer as to its therapeutics; or he may, confessing his ignorance of its cause, mention the various remedies which his experience has taught him are the most successful.

In this country probably there is no eminent practitioner who holds with more tenacity to the uterine displacement theory of the affection than Dr. Henry F. Campbell, of Georgia. In a very interesting paper presented by him at the last meeting of the American Gynecological Society, he used the following language: "Believing, as I do, that the gravid displacement is indeed the true source of all the observed histological alterations of the gravid uterus, and also that this gravid displacement is, as I have said, the *fons et origo* of the gravid nausea, I must urge as my first and last expedient for the relief of all these common evils, arising from a common cause, repeated postural pneumatic reduction in the genu-pectoral position."

Laying aside that which refers to "all the observed histological alterations in the gravid uterus" in this statement, as not pertinent to our present purpose, even if we understood the meaning of the author, we are content with the statement that the gastric disorder of pregnancy is caused by uterine displacement, and is cured by the patient lying upon her knees and chest while air is admitted into the vagina. In the paper several cases are narrated in which the author, acting upon his theory of the etiology of the disease, applied his method of treatment with the most satisfactory results. Now such facts are not to be set aside; the cause of the vomiting as well as its therapeutics, seems to be conclusively established in Dr. Campbell's cases. But is it not going too far to assert that all cases of vomiting in pregnancy are to be similarly treated, and success will be equally certain? Most practitioners hold, and we believe justly, that there are many cases of vomiting in pregnancy in which there is no positional disorder of the uterus. Dr. Campbell has such confidence in his theory of the disease, he even believes that in "many of the cases treated by Copeman's plan," the uterus was, "in some rough and violent way, accidentally elevated or replaced," and he attributes the recovery far more to this than to the dilatation.

In the course of his paper, Dr. Campbell justly criticises the incorrect representation and description given by Simpson, and Hart and Barbour, of the genu-pectoral position, for with them the chest is not brought in contact with the plane upon which the knees are resting, and it is really a knee-face, and not a knee-chest position. So, too, the weight of the argument is probably on Dr. Campbell's side when he objects to a frozen section representing accurately that which is found in the living subject. But he fails entirely to answer the assertion made by Hart in his *Female Pelvic Anatomy* that bimanual examination made when the subject is in the genu-pectoral position proves "the retroverted unfixed uterus has not become anteverted, but is more retroverted." Until this assertion is disproved, we must be allowed not to entertain quite the same measure of faith in the genu-pectoral position which Dr. Campbell holds.

But we pass to another explanation of the vomiting of pregnancy: It is that of Professor Talma, of Utrecht, and is given in the February number of the *Révue Médico-Chirurgicale des Maladies des Femmes*. According to it, the cause of the vomiting is cerebral anæmia, and the remedy is nitroglycerine; the medicine being given in alcoholic solution, or olive oil in capsules. One milligramme is administered daily, but in three doses.

The same journal also contains a reference to cases recently treated successfully by Copeman's method. Hardly any one will hold that many of these were cases in which the uterus was replaced, and the replacement, not the dilatation, cured, any more than he will believe that in the other cases just referred to nitroglycerine either replaced the uterus, or dilated the cervix. We find also recorded in the *Révue*, a case of violent vomiting in an unmarried woman thirty-two years old, the cause of the disorder being thought to be a round ulcer of the stomach; the patient was successfully treated by the use of the œsophageal tube for the introduction of liquid nourishment into the stomach for three weeks, when she could again take food naturally without vomiting, and the unmistakable signs of pregnancy were present. At the beginning of the treatment she was greatly enfeebled, vomiting all aliment, her gums swollen and bleeding—indeed, she was almost in a state of collapse. A small quantity of milk was introduced by the tube once a day, and after the milk some cold water; in a few days the interval was shortened, and other food in addition to the milk, such as animal broths and oatmeal gruel, was given. Finally, we also find in the *Révue* a case of vomiting in pregnancy cured by ether spray to the epigastrium. Certainly this method of treatment is both simple and safe, and will, in some cases, be successful. It proves also useful in other forms of gastric irritability than in that occurring in pregnancy.

THE FEAR OF HYDROPHOBIA.

One of the saddest cases of death from the fear of hydrophobia which has come to our notice for some time has recently taken place in the city of Baltimore. It appears from the accounts thus far published, that a Dr. Warner, who graduated from the Washington University ten years ago, and who was engaged in the practice of dentistry, was slightly bitten, last Christmas day, on the right hand by a small dog which he had picked up on the street, and which had been injured by being run over by a wagon. The Doctor went at once to a drug-store, and had the abrasions thoroughly cauterized with nitrate of silver, and the dog, which had exhibited no signs of rabies, was then shot. Afterward, Dr. Warner frequently referred to the bite, and evidently had the fear of hydrophobia in his mind, reading all the literature on the subject he could lay his hands on, and especially the news in regard to Pasteur's so-called prophylactic method. On the ninety-ninth day after the bite, he grew restless, had "a convulsion," and insisted upon it that he had hydrophobia. This conviction must have been strengthened by the measures adopted in the treatment of the case, if not by the open admissions of the physicians in attendance, two of whom were brothers of the patient. During three days and a half the latter manifested symptoms of exalted nervous sensibility, with illusions, delusions, and slight mania. The idea and fear of hydrophobia were never absent from his mind, although at times he protested against the suspicion of it. His treatment consisted of the customary, utterly useless remedies, and of subjection to high temperature in a Turkish-bath establishment—a practice which has recently been revived, although it was long ago employed, and abandoned because it proved valueless. After a series of painfully dramatic episodes, the patient died of exhaustion.

It is said to be the general opinion of the medical men in the city where this sad event occurred that the case was one of genuine hydrophobia. But there is strong ground for the belief that the case was one of death from nervous fear, and we do not hesitate to say that to us it appears unquestionably to have been one of spurious hydrophobia.

It is unfortunately too frequent an occurrence of late that men who have had their attention attracted to the subject of hydrophobia have come to believe that they were likely to have hydrophobia. The victims have been numerous in Europe, and if, so far, they have been few in this country, it is not because the newspapers have neglected the opportunity to increase the natural and usual dread of this disorder. The only way in which the dangerous tendency of the popular notions can be checked, is by the inculcation of right ideas in regard to hydrophobia on the part of members of the medical profession. It may be set down as a fact that where the medical profession is emancipated from false opinions in regard to hydrophobia there it is, and it will be, very rare. In Philadelphia, where the subject has been much discussed during the past four years, and where the whole tendency is toward caution in making the diagnosis of hydrophobia, there is an almost total absence of the fear of it, and not a case has occurred for more than three years. The cause of humanity demands consideration for those outside of the medical profession, and we would suggest that the Baltimore medical men sift the case we are commenting upon more thoroughly before they sanction an opinion in regard to it which rests upon such slight support, and which may do much harm.

A paper published two years ago by Dr. Dulles, of this city, on "The Disorders Mistaken for Hydrophobia," might well be carefully studied by those who desire to have an idea of the many sources of error in regard to the diagnosis of hydrophobia, and to formulate opinions on the subject which will bear more than a superficial examination. When we consider the numerous conditions which this writer shows to be accompanied by the symptoms of hydrophobia, we cannot escape the conviction that such cases as this one from Baltimore, and the one which recently occurred in Newark, were of a sort which it is not hard to exclude from the category of those which deserve to be seriously considered as due to a specific infection. How many of the cases which have occurred at Paris—the very focus of the recent excitement—and at Pasteur's laboratory itself, are to be regarded as due to fear and imagination, it might be presumptuous to try to guess. But of the cases occurring here among our own people, it seems a plain duty to express our opinion.

THE MEETING OF THE ASSOCIATION.

The American Medical Association, at its meeting week after next, will have under consideration questions of vital consequence to its future career, and of the gravest import to the profession at large. Up to a very recent date the Association was pursuing a most useful and influential career, and commanded the cordial and harmonious support of the entire profession; when, however, it gave its assent to legislation which has created dissension in the profession it inflicted a most serious blow to its own welfare. By that legislation neither honor nor prestige has been gained, and the loyalty to the Association of a large proportion of the profession has been subjected to a perilous strain. The leadership at New Orleans which has swept the Association out of the placid waters in which it safely floated for nearly forty years, into the stormy sea of discord, has proven to be unsafe. Calming oil must now be

poured upon the waters if the perilous breakers which surround the Association are to be subdued, and wise and conservative counsels must direct the helm if the good ship is to outride the storm. With a large measure of faith, we hope that conservative influences may prevail at St. Louis for a restoration of that harmony which is essential to the maintenance of the power and influence of the Association.

REVIEWS.

A System of Obstetric Medicine and Surgery, Theoretical and Clinical, for the Student and Practitioner. By Robert Barnes, M.D., Obstetric Physician to St. George's Hospital, etc., and Fancourt Barnes, M.D., Physician to the Royal Maternity Charity, etc. 8vo. pp. 884. Philadelphia: Lea Brothers & Co., 1885.

This large octavo volume of 884 pages cannot be regarded in the light of a text-book, as it covers a ground in many respects quite different from that usual in obstetrical works designed for the instruction of medical students. It covers, in fact, so wide a range of subjects appertaining to the practice of obstetrics and the treatment of the maladies of women, that it may be said to present a few remarks upon a little of everything, in which respect it resembles in character a manual or ready remembrancer. Nearly one-half of the volume is taken up before the subject of labor is reached, and in this we find treated the ovum, female generative organs, impregnation and conception, development of embryo and fœtus, placenta, physiology of the fœtus, anatomy of the generative organs, processes of gestation, childbed, lactation, signs and diagnosis of gestation, pathological states which simulate gestation, the duration of gestation; the care of the gravida, abnormal gestation, displacements of the gravid uterus, diseases of gestation (79 pages), abortion, diseases of the embryo (22 pages), and diseases of the placenta (24 pages).

In the chapters upon diseases of gestation, of the embryo, and of the placenta, covering together 125 pages, we have references to, simply by name, or short accounts of, maladies, which, if elaborated, would fill a large volume. These are valuable, as enumerators or indicators of the many ills to which the woman, the fœtus, and the placenta are liable, and we here find references to valuable monographs which may be referred to, if we desire to study any one subject at greater length.

Speaking of the color line in pregnant women, marking the location of the linea alba, Dr. Barnes remarks, that "in negresses it is as black as ink." This is certainly not the experience in our country. It is possible that in a woman exceptionally black, the line might be unusually dark, but brown is the color usual in the African race.

In the treatment of tubal gestation, nothing is said concerning the numerous successful fœticides which have been produced, particularly in this country, by the faradic current. The author appears to think aspiration to be the simplest method by which to destroy the embryo; when it is well known that the instrument of Dieulafoy is by no means a safe one to use either in the pelvis or abdomen. Duchenne's plan of shock by a Leyden jar is recommended as a fœticide, when the simple method of Dr. J. G. Allen has been so often tested, and with such satisfactory results, both as to safety and efficiency.

Missed labor is defined to be "the hypothetical retention of a mature fœtus in the uterus beyond the natural term of gestation, signs of labor at the proper time having been manifested." The remark is then made that "all the presumed cases are resolved into concealed abortion or ectopic gestations." Now Dr. Barnes ought to know that there are several cases upon record in the United States in which the fœtus was retained in the uterus, and was removed therefrom by the Cæsarean operation; and he could, also, find cases beyond question in the records of Great Britain.

In the treatment of cases of rupture of the uterus, Dr. Barnes recommends delivery by laparotomy, and then the removal of the uterus, as initiated by Dr. Prevôt, of Moscow, which procedure he erroneously calls the Porro operation. He gives as an excuse for the removal of the uterus, the danger of a second rupture in the event of a subsequent pregnancy. He does not deny the fact, that of six women operated upon up to the time he wrote, not one had escaped death. We have now a record of eight cases, with one woman saved. These women had no pelvic obstruction to justify the method, and five of them were multipara. We cannot find any excuse for the plan of Prevôt, especially since so many more subjects in proportion have been saved where the uterus was not removed. As laparotomy after uterine laceration has saved a greater proportion of cases in the United States and in some parts of Europe than the Cæsarean section, we see no reason to follow the teachings of Dr. Barnes; we have much more faith in cleansing the abdominal cavity and suturing the uterus.

Of course, Dr. Barnes prefers his own treatment of placenta prævia, and says but little of that of Dr. Hicks; but since the trial of the latter in Berlin, in 178 cases, with a mortality of 8 women, or 4½ per cent., we feel inclined to recommend bimanual turning, and bringing down one leg as soon as one or two fingers can be passed through the cervix, in preference to any other expedient.

The most decided opponent in England to the Cæsarean operation, and the strongest advocate of craniotomy down to a conjugate of 1½ inches is Dr. Robert Barnes. He cannot even see the impropriety of repeating the latter form of delivery upon the same subject as often as the woman may see proper to become pregnant; anything but gastro-hysterotomy appears to be his motto. After the results of the Cæsarean operation of latter years in England, when done promptly, we cannot condemn Dr. Barnes for his fear of it at home, but his book is not written for his own land alone. He is not, therefore, to ignore the fact, that a new method of operation, devised by Sänger, has saved in Germany 9 out of 11 women during the last six years. Laparo-elytrotomy is mentioned, but in no way commended. Now what has this expedient accomplished in the cities of New York and Brooklyn? From 1838 to the present time there have been 10 Cæsarean operations in the two, with 9 deaths; and since March, 1870, a period of sixteen years, 9

laparo-elytrotomies, with only 3 deaths. In his remarks upon the revival of symphysiotomy, under Morisani, of Naples, he says: "the mother will probably remain lame." This is directly in opposition to a statement made by Professor Morisani to the reviewer, in a letter, in 1882. Point 4 was to the effect, that "the immovable dressing secured the firm union of the symphysis pubis in all the cases that recovered." And point 8: "there were no pelvic lesions left, as a sequel of the operation." Dr. Barnes has no faith in statistics, but there is a way to obtain and weigh them which makes them of incalculable value, and they will often tell very unwelcome tales to one who may have set his mind to believe the contrary. The questions, Why did this patient recover? and Why did that one die? are to be carefully and impartially investigated, if we are to give statistics any value as a guide for the future, and as a means of teaching how to obtain better results.

The work under review has much in it of value, but it is inferior to Dr. Robert Barnes's former treatises upon *Obstetric Operations*, and the *Diseases of Women*.

SOCIETY PROCEEDINGS.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, April 7, 1886.

The President, S. Weir Mitchell, M.D., in the Chair.

Dr. J. H. Musser read

NOTES OF A CASE OF RAYNAUD'S DISEASE.

After reviewing the salient features of this disease, and pointing out the affections allied to it, the writer stated that while his case was not, strictly speaking, a case of Raynaud's disease, if the term be confined to symmetrical gangrene, yet with Barlow, who considers the paroxysmal character of the circulatory disturbances to be the essential clinical manifestation of Raynaud's disease, he could not well give it any other name. Certainly vasomotor disturbance was prominent and, if not actually causal, was an important aid to the development of gangrene. In detailing the case, the writer called attention to some vasomotor phenomena prominent in the previous medical history of the patient. They were extreme blushing, a causeless vertigo, and peculiar vasomotor phenomena attending the action of cold or due to tobacco, to both of which he was susceptible. The patient had had malaria, and an attack of chilblains years previously; never syphilis. His mother was insane, his sister hysterical; rheumatism prevailed in the family.

The young man began to serve milk on the 17th of May. Four days afterward a lump of ice fell on the palm of the left hand, and five days after the receipt of this injury his hand suddenly became cold, numb, and the seat of pain. At the same time he experienced slight tingling and numbness in the right hand. The left-hand pain was lancinating. Five weeks after the accident he was awakened in the night by severe pain, and on examination found his hand cyanosed.

When first seen by Dr. Musser the hand was blue. The end of the index finger was intensely cyanotic and on its palmar surface a small sphacelus was seen. A similar slough was seated on the little finger. The hand was very cold and the seat of intense pain, which was worse at night, increased by solar heat and by cold applications. The finger-tips were tender on pressure. No atrophy, no œdema, no loss of power or of tactile sensibility, no change in sensation and in electrical reactions. The nails grew, but were painful. General health good; eye ground and pupils normal. Urine normal. At this time the local asphyxia alternated with local syncope, four or five times in a day; the syncopal attacks lasted five to fifteen minutes; the pulse was absent in the brachial and radial arteries. Later, the change from asphyxia to syncope occurred hourly. He remained under treatment until September 15th. During this time the fingers, except the ring, were cyanosed. Finally the cyanosis led to dry gangrene of the index finger, and by the 1st of September the first and second phalanges were removed. A slough formed on the middle and little fingers. The nails grew but slightly, and after a time it was found the portion growing was on a lower plane than the first part and was cracked and friable. The cyanosis gradually gave way to an irregular mottling. The hand has been extremely sensitive to cold, yet the patient has followed his usual occupation since October 1st.

Dr. Musser believes a thrombus was present in the radial and brachial arteries. The capillary vessels, as observed on microscopical section of a piece of tissue, were not inflamed but contained blood-clot. The thrombus does not explain the vasomotor phenomena, however, and the reporter thought it due to reflex action. The source of reflex action being in the vessel or its walls, its irritation would be carried by the "pressor" fibres to the central ganglia. The absence of paralyses, atrophies, or electrical changes, left neuritis out of the question.

The treatment was by electricity, which always relieved pain, and by nitroglycerine.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 15, 1886.

The President, A. Jacobi, M.D., in the Chair.

MEMORIAL NOTES

of deceased Fellows and officers were read as follows: of Alfred C. Post, M.D., by Dr. Stephen Smith; of S. Oakley Van der Poel, M.D., by Dr. A. Van der Veer, of Albany; of Austin Flint, M.D., by the President.

Dr. T. Herring Burchard read a paper on

PELVIC ABSCESS IN THE MALE.

This subject, he said, has not attracted the same surgical attention as have those occurring in the female; but the serious nature of the affection is quite as great in the one as in the other, and its occurrence he believed to be more frequent than the meagre literature of the subject would lead us to suppose.

Five cases have fallen under Dr. Burchard's immediate observation. By pelvic abscess, he wished to be understood as meaning a phlegmonous inflammation occurring in the superior portion of the pelvic cavity, below the cavity of the abdomen, from which it is separated by the pelvic reflexions of the peritoneum, and above the vascular floor formed by the levator ani

muscle. It must not be confounded with abscesses of the abdomen—typhlitic, perityphlitic, etc.—nor with those originating below the levator ani, in the ischio-rectal fossa. In the loose connective tissue which occupies this region, described by Richet as the pelvi-rectal space, abscesses occasionally form.

From the peculiar anatomical construction of this space, with its bony lateral boundaries and its dense and almost impervious musculo-membranous floor, abscesses may originate here, producing most acute constitutional disturbance, and yet be unaccompanied with any distinguishing symptoms that would call the surgeon's special attention to their existence. Not only this, but, following the general law of abscesses, to travel in the direction of least resistance, they will burrow internally to very distant parts without manifesting their presence by coming to the surface.

Thus, they will dissect their way through the foramina of the pelvis, and appear externally under the gluteal muscles: they have penetrated the acetabulum and destroyed the hip-joint; they have dissected up the aponeurosis of the iliac muscles, produced necrosis of the ilium, and appeared upon the external surface of that bone. Or, the abscess having emerged from the pelvic cavity, may travel anteriorly, following the course of the femoral vessels beneath Poupart's ligament, and make its appearance on the anterior surface of the thigh. Or, again, it may penetrate the hollow viscera and evacuate itself into the bladder, the rectum, or the peritoneal cavity. In fact, having once escaped its bony confines, there is no direction in which it may not travel.

Mr. Henry Morris divides such iliac abscesses, of pelvic origin, into two groups, (1) the subperitoneal, and (2) the subaponeurotic; the former being prone to spread widely, in both an upward and a downward direction, and the latter more circumscribed, forming between the fascia iliaca and iliac muscle, and producing caries or necrosis of the bone.

The clinical history and symptoms naturally vary according to the acuteness or latency of the attack. Should the attack be acute, both the constitutional and the local disturbance are proportionately greater. In such cases the phlegmon forms rapidly, with great pain and corresponding febrile phenomena; and such an attack might readily be mistaken for one of general or circumscribed peritonitis. With the pain we have more or less abdominal distention, tympanites, vomiting, and flexion of the thighs; all of which are characteristic of that disease. Micturition is difficult, or altogether impossible. The tumefaction may project into the rectum, setting up proctitis and tenesmus. Should the inflammation spread upward, localized or general peritonitis may result. Abscesses that form thus acutely are more likely to evacuate themselves spontaneously in either the rectum or the bladder than are those of a subacute or chronic character.

Having quoted the history of a case illustrative of the truth of this statement, published by Dr. Bowditch in the First Medical and Surgical Report of the Boston City Hospital, 1870, Dr. Burchard went on to remark that just how speedily the inflammation may terminate in suppuration in these acute cases, it would be difficult to say. The inference is logical, he thought, that suppuration, when it occurs, does so some considerable time before it makes itself manifest by external tumefaction. It seems that the delay in getting the evidences of abscesses is not due to the absence of pus, but rather to the difficulty the pus experiences, on account of the depth of the suppurative process, in coming to the surface.

During all this time, however, the constitutional evidences of internal suppuration are more or less pronounced, and a carefully conducted examination at this stage may forestall and prevent many months of tedious suppuration, with its attendant evils. Still, chronicity, rather than acuteness, seems to be the rule with pelvic phlegmons in the male, except in cases having a traumatic origin. The affection most frequently occurs in the poorly nourished and cachectic, and in such subjects inflammatory processes are slow, and suppuration tardy. A widely diffused induration may pervade the pelvic cellular tissue months before its final breaking down into pus. The diagnosis in such cases is often very baffling, owing partly to the inaccessibility of the parts affected, and partly to the complexity of symptoms that arise from so many different tissues, organs, blood-vessels, and nerves being implicated in the inflammation.

As bearing upon the clinical history, Dr. Burchard related five cases which had come under his personal observation. Of these, the last was of greatest interest, and was as follows:

Peter Murphy, aged twenty-three, married, a porter by occupation. Always temperate, and robust and strong up to March, 1882, at which time he was suddenly seized, after some unusual exertion, with sharp pains in the right iliac fossa, which lasted thirty hours. This paroxysm terminated in a dull, heavy pain, which extended across the hypogastrium into the left iliac region, and which continued with greater or less severity up to the time of his operation.

In June, 1884, he was admitted to St. Luke's Hospital, suffering from the same intense pains. Poultices were applied, but no suppuration occurred. The diagnosis of typhoid fever was then made.

In the following August, after several unsuccessful aspirations, an abscess of the right lumbar region, midway between the iliac crest and the ribs, was evacuated by the late Professor James L. Little. The case was regarded by him as one of perityphlitic abscess.

At this time the patient's condition was very bad, with some steady pain deep in the pelvis and perineum, and darting pains extending through the rectum into the right testicle and down the sciatics. There was also priapism, with involuntary nocturnal emissions.

In December a second abscess formed, and was opened by Dr. Little. Although suffering more or less constant pain, his health improved during the winter; but, in March and July following, other abscesses formed in the side and over the body of the ilium. These were also opened. In August and September he had the pain and constitutional disturbance of forming abscesses, but free incisions failed in giving vent to pus.

October 5. Patient's health evidently failing. All the old pains have returned. A careful examination under ether was made by Dr. Burchard, Drs. Seneca, D. Powell, and Henry A. Mandeville assisting; but, owing to the thickness of the abdominal walls from fat, this was very unsatisfactory. Rectal examination revealed nothing.

A localized phlegmon over the ilium, two inches below and to the front of the posterior superior spinous process, was opened, and carious bone detected. This was removed by gouge and rongeur. The superficial caries led into a large abscess cavity in the ilium, and this in turn communicated by a direct opening with the iliac fossa. The finger, introduced through the bone, could detect nothing abnormal within the abdomen. The carious bone being thoroughly removed, a tent of bichlorized oakum was introduced through the ilium, and the wound partially closed.

29th. After great pain, referred to the hypogastrium, right iliac region, and right testicle, another abscess formed, and discharged through the opening in the bone. The source of this could not be detected, and both external and rectal examinations failed to throw light on the case.

In the early part of December another abscess formed within the pelvis; but, instead of discharging through the opening in the ilium, pointed over the crest, and was evacuated at this point.

The patient's condition was now critical in the extreme. He was rapidly losing strength and flesh, and was being worn out with constant pain and suppuration; while albumen, with hyaline casts, appeared in his urine. It was felt that something effective ought to be done, and yet there was nothing tangible upon which to found a diagnosis, beyond the fact that at irregular intervals abscesses in the right iliac region would form and discharge. Repeated examinations were negative in their results.

Laparotomy was accordingly performed February 1, 1886, at St. Elizabeth's Hospital, by Dr. Burchard, Drs. H. Marion Sims, Mandeville, and C. W. Stimson assisting. An incision was made, commencing just above and posterior to the posterior superior spinous process, and following the bone downward for a distance of five inches. The dissection was carried through the abdominal muscles, and the peritoneum exposed. This he endeavored to detach from the subjacent fascia, but so firmly adherent was it that, in spite of very gentle manipulation, it tore. A flat sponge was introduced through the laceration, to hold back the intestines, while with the hand a thorough exploration was made. Almost immediately a mass of adhesions was found, that led to an old abscess cavity which occupied the posterior half of the fossa, and extended, like a great sinus, directly from the ilium, on the line of the pelvis, and down into its cavity. No dead bone could be detected.

The sinus having been laid open, its walls, which were almost cartilaginous, were thoroughly revivified with a dull curette. The sinus through the bone was likewise curetted, and some carious bone removed. Two drainage tubes of soft rubber, eight inches long, were carried directly to the bottom of the sinus, and the whole thoroughly irrigated with a solution of bichloride of mercury, 1 : 2000. The abdominal wound was now closed with deep and superficial sutures. The incision leading through the bone was kept open, and dressed from the bottom with iodoform and bichlorized oakum. A superficial dressing of borated cotton was made over all.

The patient rallied well. On the third day the temperature rose to 102⅗° F., and the pulse to 120, and there was a very slight circumscribed peritonitis. On the sixth day the patient's temperature was practically normal, and the discharge from the tubes scarcely amounted to half a drachm. After this the tubes were shortened gradually, and at the end of three weeks were entirely removed, firm granulations having filled up the cavity of the sinus. The opening through the bone has likewise been filled in with new tissue, and is now closed.

Having presented the patient, who, he said, was in better health than he had enjoyed for years, Dr. Burchard then spoke of the diagnosis and treatment of pelvic abscess in the male. Wherever cellular tissue exists in the body, then suppurative inflammation is liable to occur. The male pelvic cavity, as the grossest dissection will show, contains a large amount of cellular tissue, and, pathologically, it is no exception to the rule.

Inflammation occurring here manifests itself, in addition to local distress or pain, which is generally severe in character, by the usual constitutional disturbances. After tumefaction has occurred, another set of symptoms arise, which are due to pressure on sensitive nerves and organs. Another feature peculiar to these abscesses is their tendency to burrow, and the very great dangers attendant thereupon. Their natural destination should be the perineum, and such doubtless would be the case, were it not that the extremely dense fibres of the levator ani and prostatic muscles, which are largely composed of firm fibrous tissue, present an almost impenetrable obstacle.

The next most natural route would seem to be the rectum, and here many of these abscesses are evacuated. Many, however, mount the pelvic cavity, and appear within the abdomen.

After this their course is erratic. Most of the abscesses appearing anterior to the bladder in the so-called "cavum Retzii" (named after the distinguished Swedish anatomist, Retzius), the prævesicular abscesses of French surgeons, are abscesses of pelvic origin.

Clinically, it is important to distinguish between an inflammatory condition pure and simple—a cellulitis simplex—and the same condition after it has passed into the suppurative stage.

The presence of pus cannot be recognized at too early a period. It is likewise necessary to distinguish between a pelvic cellulitis and general or localized peritonitis; also between this and cystitis, proctitis, and prostatitis. Rheumatism and neuralgia, too, must be borne in mind.

Surgically, it is necessary to differentiate between abdominal abscesses, ileo-pelvic abscesses, pelvic abscesses, abscesses of the ischio-rectal fossa, and perineal abscesses. Exceptional possibilities must be carefully considered; such as hernia strangulated in the pelvic foramina, passage or impaction of renal calculi, acute inflammation of the psoas muscle, typhlitis and perityphlitis, and lastly, scrofulous, malignant, tubercular, and syphilitic disease of the pelvic glands.

The treatment, externally, resolves itself into treatment of the cellulitis before suppuration, and treatment after suppuration is established. In the former case, rest, morphia, quinine in few doses, local refrigeration, and possibly, local depletion by leeches to the perineum.

In employing cold in this, or any other inflammatory condition about the rectum, nothing equals in efficacy and comfort, in Dr. Burchard's experience, the continuous douche of cold water, which passes up and imme-

diately returns through a double-flow blind tube. The great mistake that is often made by the inexperienced in the application of either this or the ice-coil is in applying it too cold at first. The water at first should be warm, and then gradually cooled until ice water can be used, and with astonishing relief. During acute inflammation frequent rectal explorations should be desisted from, as calculated to do more harm than good. After suppuration may reasonably be suspected, a careful examination under anæsthesia should be made, in order that the abscess may be evacuated into the rectum at the earliest possible moment. If evidence of internal suppuration persist, and there is reason to believe the pus to be burrowing upward, an abdominal exploratory incision is obviously demanded.

If this can be made without opening the cavity of the peritoneum, it certainly should be done. The object to be attained, however, is the evacuation of the pus; but we cannot always be successful in this, as adhesions will form impassable barriers at times. The principle, however, is surgical and conservative.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, April 6, 1886.

The President, C. L. Dana, M.D., in the Chair.

The following named gentlemen were elected

OFFICERS FOR THE ENSUING YEAR:

President.—C. L. Dana, M.D.

Vice-Presidents.—M. A. Starr, M.D., and B. Sachs, M.D.

Recording Secretary.—G. W. Jacoby, M.D.

Corresponding Secretary.—W. M. Leszynsky, M.D.

Treasurer.—E. C. Harwood, M.D.

Councillors.—L. Weber, M.D., E. C. Seguin, M.D., W. R. Birdsall, M.D., G. M. Hammond, M.D., and A. D. Rockwell, M. D.

A NEW THERMOCAUTERY.

Dr. Graeme M. Hammond presented the instrument, consisting of a Bunsen burner which, by the action of a spring and clamp throwing a platinum tip at right angles to the burner, could at once be converted into a thermocautery. It has the advantage over the ordinary Paquelin cautery of being always ready for use.

CASE OF MEDIAN NERVE SUTURING.

Dr. Fraser C. Fuller presented a man who two and a half years ago sustained a glass cut wound of the lower forearm, resulting in complete division of the median nerve and a part of the sublimus flexor. The nerve was sutured with three small strands of catgut a few hours after the injury. The tendons were also united. The operation and dressing were absolutely antiseptic, and primary union took place. At the time of the operation there was complete cutaneous anæsthesia of the region supplied by the nerve. After several months sensation slowly returned, and a year and a half after the operation it was perfect. Power in the small muscles of the affected hand had not entirely returned. Dr. Fuller referred to another case in which spontaneous recovery took place, operation being refused. There occurred, however, deep necrosis of the finger-tips, and to constant care and energetic electrical treatment only could the eventual recovery be attributed.

Dr. Dana thought the case illustrated very well the result of the experiments of Johnson and Stockholm, that divided nerves, if sutured, healed in about sixty days, but if let alone they healed in about ninety days.

Dr. B. Sachs then read a paper entitled

PRELIMINARY REPORT ON A CASE (WITH AUTOPSY) OF TUBERCULAR DISEASE OF THE SPINAL CORD.

After a few introductory remarks the reader gave a full report of the case, of which the following is a short abstract: The trouble, which was supposed by the patient to be rheumatic, began with pains in the left shoulder which radiated down into the arm, forearm, and hand. By degrees the pain became more intense; at first it was confined chiefly to the area of distribution of the ulnar nerve, but had gradually spread over the entire dorsal and volar surface of the left arm and hand. In addition to this hyperæsthesia (and hyperalgesia), to puffiness of the fingers and to a glossy appearance of the skin, there was marked weakness of grasp in his left hand, with only slight loss of power in the left upper arm and forearm. The condition of the left upper extremity remained unchanged during the entire course of the disease—a period of about two months. At the time of the first examination—five weeks after initial pains—there were no other symptoms discoverable but these: a slight paresis and some hyperæsthesia of the left leg, exaggerated knee-jerks and ankle clonus on both sides. These symptoms, chiefly unilateral, continued so until the close of the seventh week; meanwhile the paresis of the left leg had developed into almost complete paralysis; in the course of another week this unilateral paralysis was transformed into a complete paraplegia of the lower extremities. The motor paralysis also affected the abdominal muscles, and to some extent the respiratory muscles of the thorax, and the right upper extremity. Incontinence of urine and trophic changes in the skin were superadded. The sensory symptoms amounted to a general hyperæsthesia of the left half of the body below the level of the third rib; this hyperæsthesia was changed toward the end of the disease into an anæsthesia which spread from the left half, and finally involved the right leg and to a less degree the right half of the trunk and the right upper extremity. A tumor pressing upon the left posterior root fibres of one of the lowest cervical segments was thought sufficient to explain the unilateral symptoms; the bilateral symptoms were attributed to a cervico-dorsal myelitis. But there was no clew during life to the nature of the tumor. The autopsy showed a solitary tubercle situated on the left side between the sixth and seventh cervical segments, followed by a cervico-dorsal myelitis; there were *very slight* tubercular deposits in the lungs and intestines.

In his remarks on the case, the author of the paper attempted to explain the eccentric characters of the sensory symptoms (no anæsthesia on the side opposite the lesion), the exaggerated knee-jerks and presence of ankle clonus on both sides, and then referred in detail to the behavior of the muscular sense, which was lost on the side of the lesion and not on the side opposite the lesion. This was in accord with Brown-Séquard's views

and opposed to those of Ferrier. In conclusion, the reader asked for discussion of the following points: 1. Differential diagnosis between tumor and other forms of spinal cord disease; 2. Frequency of tubercular affection of the spinal cord substance; 3. Unilateral symptoms from spinal cord disease, with special reference to disturbances of sensibility and of the muscular sense in particular.

Dr. M. A. Starr had, by invitation of Dr. Sachs, made an independent examination of the patient three weeks ago. That which caused them to hesitate in making a diagnosis was the difficulty of harmonizing the sensory disturbances with the assumption of an absolutely unilateral lesion in the cord. It had been said that Brown-Séquard had shown pretty conclusively that anæsthesia on one side and hyperæsthesia on the other, are due to a unilateral lesion on the same side, the side on which there was hyperæsthesia. The autopsy in this case showed pretty evidently that it did not fall in line with those of Brown-Séquard; that in the early stage, at least, of unilateral cord disease anæsthesia of the opposite side of the body did not always exist. But it was impossible to draw any definite conclusions from a single case, and he had been unwilling to admit this one as being outside the usual line, because he had previously seen one at the Polyclinic, since reported by Dr. Taylor as confirming in all respects the theory of Brown-Séquard. It was true no autopsy was obtained, but the symptoms seemed to be very definite. Dr. Starr thought the whole subject of sensory conduction in the spinal cord is in an unsatisfactory state. There seemed to be no doubt that the muscular sense tract lies in the column of Goll and crosses in the medulla, not in the cord. That view was confirmed by Dr. Sach's case. The areas of analgesia and hyperalgesia in the later stages of this case were rather irregularly distributed, thus rendering the study of the sensory tracts in the cord extremely difficult. He had been impressed with the great hyperalgesia in the arms of this patient, the slightest touch, even of the nails, causing great gain. If the sensory tracts crossed just after entering the cord, why was there not anæsthesia on the right side in this case? Three or four cases had been recorded in which there was some reason to believe that the sensations were conveyed upward through lateral tracts in the cord, anterior to and a little outside of the pyramidal tract. Three or four cases had been reported in which there was ascending degeneration in this tract, and he had himself seen one which was not yet reported. If sensations were carried upward in that portion of the cord, it would possibly explain some of the peculiarities in Dr. Sachs's case, in which that portion chiefly escaped.

Dr. L. Putzel said that if Dr. Sachs referred to miliary tuberculosis of the cord, he could say from his own experience that it is not of very infrequent occurrence.

Dr. Sachs said that he referred to tuberculosis of the spinal cord substance, and not of the spinal meninges.

Dr. Putzel had seen only one case of that kind, in which the disease gave rise to a myelitis with all the characteristic symptoms. Tuberculosis of the cord had not been suspected. The case occurred in a phthisical woman. It seemed to him that the lesion in Dr. Sachs's case was so diffuse that very little could be learned from it regarding localization and transmission of sensory impressions. Concerning Dr. Starr's views as to the muscular sense being conducted by the columns of Goll, he had seen some years ago a case of meningomyelitis in which there was considerable thickening of the membranes posteriorly, and such degeneration of the columns of Goll that it could be seen distinctly through the pia mater, yet there was not the slightest evidence of affection of the muscular sense.

Dr. Leo had seen in institutions a number of cases of tuberculosis in patients suffering from locomotor ataxia, especially in old men.

Dr. E. G. Spitzka reviewed some of the points in the case, and said he thought the fact that tumors in other portions of the cord had not been excluded, deprived the case of much determining value. As to the views entertained by Brown-Séquard and referred to in the discussion, he had been somewhat surprised at some of the revelations made during the course of the discussion. He had not considered tuberculosis either of the membranes or of the substance of the cord so common an occurrence in old age, that any single observer could have seen a large number of cases, and certainly the suggestion made by Dr. Leo was worthy of following up. Regarding the muscular sense tract, he thought that if a single case was to be accepted as disproving the supposed function of a given part of the cord, there was no part which could not be regarded as without function. He remembered that specimens had been presented before this Society, in which it was claimed that the columns of Goll had undergone slight degeneration, when it was found that there was only a slight thickening of the septum from old age.

Dr. Putzel remarked that the case which he referred to was also examined by Dr. Welch.

Dr. Graeme M. Hammond said that the question which interested him specially, was whether exaggerated knee-jerks and ankle clonus necessarily indicated an organic lesion. He had under treatment a gentleman in whom there was exaggerated tendon reflex, and very marked ankle clonus in both the upper and lower extremities on the left side. There was no stiffness, pain, atrophy, or other symptoms of spinal disease. After a few doses of ergot the ankle clonus and exaggerated tendon reflex disappeared, to return again after quitting the ergot, and disappearing with its renewal. Two or three years ago he exhibited before the American Neurological Association a man cured of locomotor ataxia, and in whom there was entire absence of tendon reflex; yet under the influence of ergot the tendon reflex returned. We could hardly conclude that ergot cured true sclerosis or any organic disease. The question arose, Were exaggerated reflexes and ankle clonus to be regarded as the effect of organic disease of the cord.

Dr. M. Putnam Jacobi inquired as to the relation between increased patellar tendon reflex and functional disease, and referred to a marked case of hysteria, in which during a protracted attack she noticed very marked exaggeration of the patellar tendon reflex.

Dr. Spitzka said that only a few days ago a child which had poliomyelitis, the right lower extremity only being affected, received for several days in succession double the dose of strychnine which he had intended to administer, which had the effect of producing marked exaggerated knee-jerks and ankle clonus, which had

previously been entirely absent. He could never understand why ergot should produce the opposite effect, although he did not doubt that it had done so in Dr. Hammond's case.

Dr. Sachs, in taking up the various points raised in the discussion, insisted on the importance of differentiating in his case between the symptoms due to the tumor and those due to the subsequent myelitis; the unilateral symptoms alone could be put to the account of the tumor. Addressing himself to Dr. Spitzka, Dr. Sachs said that he did not think it necessary to suppose several lesions in the cord in order to explain the symptoms at the beginning of the case; the symptoms which developed later in the disease were attributed to the myelitis. Of the initial symptoms, the only one opposed to Brown-Séquard's views was the absence of anæsthesia on the side of the body opposite the lesion, and the speaker explained that on the supposition that the fibres in the sensory tract were only pushed aside, and not destroyed by the tumor, retaining their conducting power. Explained in this way, the case could be made to accord with Brown-Séquard's views.

As to the exaggerated knee-jerks and double ankle clonus, it was admitted by almost all that exaggerated knee-jerk might be present in comparatively normal conditions. The existence of ankle clonus without some change in the lateral columns is questioned by many, but it was shown by Prof. Pitres to exist as early as eight hours after an apoplectic attack, and that, therefore, in his (Dr. Sachs's) case it would not be necessary on account of these symptoms alone to assume multiple lesions.

Dr. Sachs agreed with Dr. Spitzka concerning the infrequency of tuberculosis of the spinal cord. The best authorities claim that tuberculosis of the spinal cord substance is exceedingly rare.

Dr. Leo, in reply to a question, said he did not claim that the tabes dorsalis in the cases which he had seen in old people was due to tuberculosis of the cord; the existence of the two diseases may have been a mere coincidence.

Dr. G. M. Hammond thought that exaggerated tendon reflex or ankle clonus might be due to either a localized congestion or anæmia of the cord, and this would explain why in one case they were relieved by strychnia and in another by ergot.

NEWS ITEMS.

The Presentation of a Loving Cup to the College of Physicians of Philadelphia.—On Wednesday evening, April 14th, on the occasion of the 99th anniversary of the founding of the College, more than one hundred of the Fellows sat down together at dinner, Dr. S. Weir Mitchell, the President of the College, occupying the head of the table. After the cloth was removed, Mr. Horace Howard Furness, on behalf of two ladies, descendants of two of the founders of the College, presented to the College, in a happy speech, the massive silver loving cup, a drawing of which is herewith presented.

The President, Dr. Mitchell, in accepting the cup said:

"Fellows of the College of Physicians: In this the ninety-ninth year of the life of our collegiate society I rise with pleasure to receive this gift of a loving cup. I accept it for the Fellows, and have, as you can well understand, unusual personal gratification in so doing. Mr. Horace Howard Furness, our greatest Shakespearian scholar, has been chosen to be the mouthpiece of the generous women who gave it, and his words have lent added grace to a graceful gift." After commenting upon the significance of its decorations he said:

"I am quite too proud of the place in which your votes have placed me to sit down without a word as to the institution which claims us as her own. On the 2d of January, 1887, 100 years will have passed by since a remarkable group of men collected in a little room on Fifth Street to institute this college. Of some of these men I can find no record, but in cue and knee breeches, with gold-headed canes and snuff boxes convenient, no douht, in moments of medical indecision, were John Jones, Morgan Rush, Wistar, Hutchinson, Shippen, Adam Kuhn, Redman, Samuel Powell Griffiths, the Clarksons, and some of lesser note. No one could hesitate to speak of this as a notable group of men. They were founders of societies, hospitals, and libraries; were medical teachers, the fathers of our university, and in the front ranks of local politics. Their names are all socially familiar to this day. Many of them had served with Washington as surgeons and shared the gloom of Valley Forge and the sunshine of Princeton and Yorktown. Among them were the physicians of Washington, Franklin, and Hamilton. They made, indeed, part of that famous group—statesmen, soldiers, diplomatists, men of science, manufacturers of history—who helped to launch our young ship of State on the turbulent sea of history. They were hardy, ruddy, positive, decisive survivors of a great struggle—men born from the iron loins of war.

"Nor in other fields did they fail. In the sad yellow fevers, which they well called "malignant," from 1793 to 1800, they were brave and fearless when few were brave. On these fields they fell man after man, one-fourth dying at their posts. Not less did they well in the fierce typhus of the first years of this country, which cost the life of Rush, the surgeon, the signer of the Declaration, the foremost American physician of his day, a reforming philanthropist in advance of his time, a scholar, a fierce hater, a friend as earnest, a man of strange contradictions, whose remarkable abilities await appreciative commemoration at the hands of some thoughtful biographer.

"In the unimaginable horrors of the smallpox of 1825 and 1826, the successors of the founders took their usual dutiful part, and in the cholera of 1832 were as brave and as unflinching. I am sure that should such sad days recur, we should not shame their record. I now, in this loving cup, drink, first to the memory of our illustrious dead, then a health to our guests, and last to the Fellows—long life and prosperous days and success to the College of Physicians of Philadelphia."

Dr. H. C. Wood responded to the toast of "The College of Physicians of Philadelphia," the President of the New York Academy of Medicine, Dr. Jacobi, to "The Profession," Dr. J. S. Billings to "The Army and Navy Medical Service," and Mr. Talcott Williams to "The Press."

The cup was designed and made by Messrs. Bailey, Banks & Biddle, to the special order of the donors.

It is about nine inches both in height and diameter. The shape, which is eminently original, somewhat resembles a large pineapple. Each of the three handles represents the staff of Æsculapius, being a gnarled rustic branch about which is coiled his emblematic serpent. The handles at top and base are also decked with foliage symbolizing the growth and flourishing condition of the College. In the three spaces between these very appropriate and handsome handles are three medallions in high relief; viz., the seal of the College of Physicians, the bust of Dr. John Redman, the first President of the College, and the arms of the City of Philadelphia. A graceful ribbon wound about the edge of the cup bears the motto "Wine maketh glad the heart of man."

The cup is hand-made throughout, oxidization and other processes give it a finish suggestive of age, and its style is of the most massive and substantial character, not only in appearance, but in fact, even the handles being of solid silver. Inside, the cup is heavily gilt, in rich contrast with the exterior.

Food Analysis in France.—The Académie des Sciences has a laboratory in Paris for testing the quality of food and drink sold in that city. Specimens of wine, beer, cider, milk, chocolate, coffee, tea, etc., are examined, colors used on toys and in confectionery, pork suspected of being affected with trichinosis, etc. Analysis to determine whether the article presented is free from adulteration is made without charge; but a small fee is charged if it is required to determine the proportionate composition. There are twenty inspectors who visit taverns and groceries, provided with microscope and simple chemical tests, and examine many articles of merchandise on the spot, only taking to the laboratory such articles as afford some evidence of adulteration. Twenty-five chemists are connected with the laboratory, each one having his own department. About 25,000 samples are analyzed annually at an expense of about $40,000.

An Interview with Pasteur.—In the *New York Tribune*, of April 19, there appears a report of an interview between a correspondent and M. Pasteur, in which the latter spoke as follows regarding his failure to cure the Russians bitten by a mad wolf.

"The duration of the incubation of hydrophobia after a bite from a mad wolf is often very short; sometimes only two or three weeks. After the bite of a mad dog short periods of incubation are rare. However, I do not think the virus of a mad wolf differs much from that of a mad dog, unless the wolf has received the virus from another wolf, and that one from another, and so on. In the case of hydrophobia thus transmitted from wolf to wolf, the bite of the last wolf would have a much greater degree of virulence than that of a dog. We don't know what happens in the forests of Russia. That is a matter for future study. It may be found that the inoculation of victims of mad wolves ought to begin five or six days after the bite. If that be so, and if the forests of Russia are found to contain mad wolves, I shall be the first to ask for the creation of one or more establishments in Russia like mine in Paris."

Poisonous Candy.—Two brothers, candy dealers, on Chambers Street, New York, have each been fined $100 for selling "rock and rye" drops, which on analysis by Professor Edwin Waller, of the Health Board, were found to contain fusel oil.

State Medical Society of Arkansas. — The Eleventh Annual Session of the State Medical Society of Arkansas will be held in the Council Chamber, at Little Rock, on Wednesday and Thursday, April 28 and 29, 1886, commencing on Wednesday at 10 A. M.

Medicine in Russia.—Russia has 33,400 physicians, of whom 380 are females. There are 2100 persons licensed to practise veterinary surgery. 500 are enrolled as dentists and "oculists."

Dr. Joseph Holt, President of the Louisiana State Board of Health, has been appointed a member of the Council of the Section on Public Health and Hygiene of the next International Congress, Dr. Joseph Jones, of New Orleans, being President of the Council.

An American Dinner to M. Pasteur.—Mr. McLane, the American Minister, presided at a dinner which was given on April 14th to M. Pasteur. In proposing the health of the distinguished guest, Mr. McLane referred to him as a benefactor of humanity, to whom America was extremely grateful. M. Pasteur made an appropriate response, and closed by proposing a toast to the Union, and to the friendship existing between the United States and France. 120 French, English, and American guests were present.

Pasteur Institute.—The subscription to the *Institut Pasteur* had reached the sum of 537,123 francs.

Professorship of Anatomy in Jefferson Medical College.—The Trustees of the Jefferson Medical College, at a meeting held on April 15, failed to elect a Professor of Anatomy, and adjourned to meet on Monday, the 26th inst.

Dr. Flint's Successor.—Dr. Edward G. Janeway has been appointed Professor of the Principles and Practice of Medicine in the Bellevue Hospital Medical College, in the place of the late Dr. Flint. In recognition of Dr. Flint's long and distinguished services at Bellevue Hospital, the Commissioners of Charities and Corrections have decided, at the request of the Medical Board, to put up in that institution a mural tablet to his memory.

LIFE AT HIGH PRESSURE.—At a recent meeting of the Paris Biological Society, M. REGNARD showed two cylindrical blocks of quartz, which are to be adjusted to an apparatus for submitting animals to a pressure of 1000 atmospheres. These blocks, owing to their excessive transparency, if they do not burst, will allow the observer to study all the phenomena which occur.

FEMALE PHYSICIANS.—We understand that the Colleges of Physicians and Surgeons of Edinburgh and Glasgow have just decided to throw open to women their conjoint examinations and "triple qualification" in medicine, surgery, and midwifery.

WÖHLER MEMORIAL.—An urgent appeal is being made anew in behalf of the fund for the statue to be erected at Göttingen in commemoration of the life and work of the eminent chemist Friederich Wöhler. This fund now amounts to about $4000, but must be considerably increased before it will be sufficient for the end in view. The circular of the committee asks for aid, by individual subscription and influence, from all in this country interested, especially from the chemists. Prof. J. W. Mallet, of the University of Virginia, is Chairman, and Prof. Ira Remsen, of Baltimore, Secretary and Treasurer.

THE VANDERBILT DISPENSARY.—The heirs of the late William H. Vanderbilt have united in giving to the Trustees of the College of Physicians and Surgeons of New York the sum of $250,000, to be expended in the erection and endowment of a clinic building. The site of the Vanderbilt Clinic will be opposite to the Sloane Maternity.

CHOLERA ON THE CONTINENT.—Telegrams of April 18, state that the Sanitary Board of Rome admits that Asiatic cholera has broken out at Brindisi, and has ordered that all arrivals at other Adriatic ports from Brindisi be quarantined one week. The Austrian government has ordered one week's quarantine against arrivals at Austrian Adriatic ports from Brindisi.

FOR SICK AND DISABLED NEWSPAPER EMPLOYEES.—Mr. Joseph Pulitzer, editor of the *World*, and Representative from New York, has given his first year's salary as Congressman, $5000, to the New York Hospital, to found a free bed for the benefit of newspaper employees.

GERMAN TRANSLATION OF SAYRE'S ORTHOPÆDIC SURGERY.—A fine German translation of Professor Sayre's Lectures on Orthopædic Surgery, by Dr. F. Dumont, of Berlin, has just been received.

MR. SAVORY, President of the Royal College of Surgeons, England, it is stated, has been offered a knighthood, an honor which he has declined to accept.

NOTES AND QUERIES.

HEMORRHAGE AFTER UVULOTOMY.

DR. E. CARROL MORGAN, No. 918 E Street, N. W., Washington, D. C., is investigating the subject of obstinate hemorrhage following uvulotomy, with a view of publishing a monograph on this subject. He will be greatly indebted for the details of any *recorded* or *unrecorded* examples of this rare accident.

SOLUTION OF THEINE FOR SUBCUTANEOUS USE.

After considerable experimentation with different solutions of theine, since my last article on this subject was written, I find that a solution made according to the following formula produces very little, if any, pain when introduced subcutaneously, and is also very concentrated—five drops representing one-half of a grain of theine.

R.—Theine . . . . . grs. xxxij.
Sodæ benzoas . . . . . grs. xlviij.
Aquæ destil. . . . . fl ℥ ss.—M.

For subcutaneous injection, dose, from five to twenty drops.

THOMAS J. MAYS.

April 20, 1886.

THE ANALGESIC ACTION OF THEINE.

To the Editor of THE MEDICAL NEWS,

SIR: Apropos to the very interesting paper by Thomas J. Mays, M.D., on "The Analgesic Action of Theine," in THE MEDICAL NEWS of the 17th inst., I would like to say that it is not infrequently possible to relieve cases of the character of some of those cited by hypodermatic injection of distilled water. Indeed, it is not always needful to inject *anything*—the simple puncture with a needle being quite sufficient.

It has for many years been the practice in some of the public dispensaries of New York City to treat cases of lumbago, and other myalgias, by inserting deeply a needle such as ladies use to fasten their bonnets to their hair. I have known cases of severe lumbago to be cured almost instantly by this simple procedure (adopted from Chinese practice), and I am inclined to think that some of the cases reported to Dr. Mays might have been similarly relieved.

Very truly yours.

F. A. CASTLE.

NEW YORK, April 19, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 13 TO APRIL 19, 1886.

PATYKI, J. H., *Captain and Assistant Surgeon.*—Relieved from duty at Jackson Barracks, Louisiana, and ordered for duty as Post Surgeon at Mount Vernon Barracks, Alabama.—*S. O. 75, Department of the East*, April 12, 1886.

HOFF, JOHN VAN R, *Captain and Assistant Surgeon.*—Leave of absence extended eleven months, with permission to leave the United States.—*S. O. 85, A. G. O.*, April 12, 1886.

BARNETT, RICHARDS, *Captain and Assistant Surgeon.*—Granted leave of absence for two months.—*S. O. 16, Division of the Atlantic*, April 12, 1886.

WALES, PHILIP G., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month.—*S. O. 56, Department of Columbia*, April 8, 1886.

WALES, PHILIP G., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for two months.—*S. O. 85, A. G. O.*, April 12, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING APRIL 17, 1886.

WYMAN, WALTER, *Surgeon.*—To represent the service at the meeting of the American Medical Association, at St. Louis, Mo., April 12, 1886.

SAWTELLE, H. W., *Surgeon.*—Detailed as Chairman of Board for Physical Examination of officers of the Revenue Marine Service, April 15, 1886.

URQUHART, F. M., *Passed Assistant Surgeon.*—Relieved from duty at Norfolk, Va., May 1, 1886, to assume charge of Cape Charles Quarantine, April 16, 1886.

YEMANS, H. W., *Passed Assistant Surgeon.*—Detailed as Recorder of Board for Physical Examination of officers of the Revenue Marine Service, April 15, 1886.

HEATH, F. H., *Assistant Surgeon.*—Appointed an Assistant Surgeon, April 15, 1886, assigned to duty at Chicago, Ill., April 16, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLVIII. SATURDAY, MAY 1, 1886. No. 18.

ORIGINAL LECTURES.

THE RELATIONS OF PUERPERAL ECLAMPSIA TO BRIGHT'S DISEASE.

A Clinical Lecture, delivered at the Philadelphia Hospital.

BY JAMES TYSON, M.D.,

PHYSICIAN TO THE HOSPITAL, AND PROFESSOR OF GENERAL PATHOLOGY AND MORBID ANATOMY IN THE UNIVERSITY OF PENNSYLVANIA.

(Reported by William H. Morrison, M.D.)

GENTLEMEN: The patient before us has a brief antecedent history, which is as follows: She is twenty-four years of age, and has been a domestic. Her father died of tubercular phthisis, but her mother is living and in good health. She had one brother, who is said to have died of "œdema of the brain." She herself always enjoyed good health until eight weeks ago, which was four weeks before her confinement. About that time, there occurred dropsy of the face, hands, and legs; and with this a frequent desire to pass water. These symptoms continued until the morning of her confinement, when suddenly her eyesight began to fail, and in a short time she became completely blind. She remembers nothing that occurred after this, but her mother told her that she had convulsions during labor. The patient was unconscious from early Friday morning until late Saturday night—in all, about thirty-six hours.

Some of you will at once recognize that these convulsions were what are commonly termed puerperal convulsions. Examination of her urine when she was admitted to the hospital, showed that she had large albuminuria, and that casts of the uriniferous tubules were present in the urine. We therefore concluded that while she had puerperal convulsions, she also had uræmic convulsions; and it is one of the purposes of the lecture to-day, besides discussing the renal condition from which she is convalescing, to consider the relations between that condition and puerperal convulsions.

The symptoms mentioned were the only ones presented on admission. Whatever of dropsy there may have been, had entirely disappeared. The blindness had also gone; but the urine contained albumen in considerable quantity, while the microscope revealed hyaline casts, in some of which there was a small quantity of granular matter. There is, however, nothing distinctive in the presence of hyaline casts, as these are found in every form of renal disease. The examination of the urine, therefore, did not afford us the means of making a differential diagnosis. Hence we were compelled to have recourse to the history of the case; and from what we know of the relations of puerperal convulsions to the symptoms which she has had, I conclude that the patient was suffering with acute Bright's disease, from which she is now convalescent, and that while she had puerperal convulsions she had also uræmic convulsions.

What are the facts which justify this conclusion? In the first place, we have the fact, substantiated by numerous observations, that the majority of cases of puerperal convulsions, associated with albuminuria, are due to acute nephritis. I am aware that this view is not accepted by everyone, but I have taken much pains to examine the evidence bearing upon this point, and I feel perfectly satisfied that the large majority of cases of puerperal convulsions associated with albuminuria and dropsy, are the result of acute nephritis. I do not pretend to say that it is impossible to have puerperal convulsions which are independent of Bright's disease. On the contrary, I have myself seen such cases. In these, there has been no albuminuria or dropsy previous to confinement, but the patient has been a primipara, the labor tedious, and the nervous system has been in a state of tension in consequence of anxiety and pain for perhaps twenty-four hours. I have seen puerperal convulsions immediately after delivery in such cases, in which I attributed the convulsion to a sort of explosion in a nervous system which has been in a state of prolonged high tension. Such cases always get well, and they seldom have more than one or two convulsions. Where, however, the convulsions are due to Bright's disease, they are not limited to one or two, but they continue to recur, as in the present instance, for perhaps twenty-four hours, and unless prompt treatment is instituted, the patient is very likely to die. Such a case was our own patient. When we first saw her, she had passed through the ordeal of the convulsions and had reached that stage where the distinctive varieties of casts had disappeared. There were no longer epithelial casts, or blood casts, but simply hyaline casts. It takes a long time for the uriniferous tubules to throw off all the casts formed within them, and for some time after all activity in the inflammatory process has subsided, casts may continue to be discharged. The last to disappear are hyaline casts, which are those produced by the slightest derangements in the circulation of the kidney. In this case the quantity of albumen is rapidly decreasing.

As I do not want to be understood as saying there cannot be puerperal convulsions without concurrent Bright's disease, so I do not wish to be regarded as claiming that dropsical swelling cannot be present without Bright's disease. It may be as the result of simple pressure by the gravid uterus; but where there are dropsy and large albuminuria, especially if associated with sudden blindness and convulsions, we may rest pretty secure in the belief that we are dealing with a case of acute nephritis. These cases of acute nephritis, as a rule, get well very rapidly after delivery, because they are, in a measure, really brought about by the puerperal state, and with the removal of the cause disappears the most important obstacle to rapid recovery.

Why does Bright's disease result from the pregnant state? The answer may not be altogether satisfactory, but it is certain that the condition involves the accumulation in the blood of a large amount of effete and therefore poisonous matter. We have, in fact, the same agencies operating as in many cases of Bright's disease

from other causes. It is well known that acute Bright's disease is a very common sequel of scarlet fever. It is here due to the presence in the blood either of the scarlet fever poison itself, or of effete matter which is retained in consequence of the inactivity of the skin; or both of these sources of poison may be combined. In the puerperal state we have likewise conditions favoring the accumulation of effete matters. The woman is at once the eliminator of her own excretions and those of the child, the retention of which is the essential cause of the Bright's disease. The obstruction to the circulation, due to the compression of the vessels by the gravid uterus, doubtless adds to this, but it is of itself insufficient to cause it.

There are two of the symptoms presented by this patient to which I desire to refer. The first is the blindness, and the second the convulsions. This woman, as we have heard, became blind previous to the occurrence of the convulsions. What is the cause of this loss of vision? It is known that there is a form of Bright's disease in which there are organic changes in the retina, technically termed albuminuric retinitis. These changes are most frequently associated with chronically contracted kidney. The defect of vision under such circumstances comes on slowly, but blindness, with which this patient suffered, came on suddenly, and is of a very different character. It occurs suddenly, and often disappears as suddenly as it came. Such blindness evidently cannot be due to structural change in the retina. I do not know that we are sure as to its precise cause, but the most rational explanation is that which attributes it to the same cause that produces the uræmic convulsions—that is, an accumulation of urea and allied substances in the bloodvessels of the brain, affecting the centre of vision, and thus blotting out, for the time being, the responsiveness of that centre to the stimulus to which it usually responds. The convulsions are caused in the same way. The nerve cells are irritated by the presence of these products, and the response comes in the shape of a convulsion.

We have in these facts the key to the treatment. Unquestionably, the most efficient treatment of puerperal convulsions is bloodletting, for by bloodletting we draw from the system the agent which is the most important factor in the production of uræmia. But it may be said by some that venesection is not recommended in the treatment of the convulsions of acute Bright's disease. Why then should it be used in puerperal cases, if the same essential causes prevail in both?

I believe, however, that it is a mistake not to treat the convulsions of non-puerperal Bright's disease in the same manner, and that if bleeding were more common, the results would be more satisfactory. I do not hesitate to advise you to bleed in the convulsions of acute Bright's disease. No harm can follow the removal of from eight to sixteen ounces of blood from an adult patient, so that if it does no good, it does no harm. You must not, however, expect equal success, because there is still an important difference in the conditions. In the instance of renal disease accompanying the puerperal state, the termination of this state not only removes the remote cause of the disease, but the disease itself is usually less advanced, and the chances for recovery may thus be increased.

Afterward, or coincidently with this measure, anæsthetics are often of great service, and the patient is kept, with great advantage, more or less thoroughly under the influence of chloroform or ether, in order to keep off the convulsion. This is not always necessary, for in many cases chloral answers every purpose. There is no condition in which chloral can be relied on more confidently, in connection with venesection, than in puerperal convulsions, and in the convulsions of Bright's disease. It must be given in full doses. I usually give an adult one drachm of chloral by enema. It is not worth while to give a smaller dose. The dose named may be repeated; but in the majority of cases one dose is sufficient. Chloral has the advantage over anæsthetics, in that it is possible to judge accurately of the condition of the patient. When a patient is under chloroform or ether, it is impossible to note the changes in mental condition by which almost alone we are to judge of improvement. If bloodletting and chloral are not sufficient, chloroform or ether must be resorted to. Chloroform, dangerous as it is in ordinary surgical operations, appears to be harmless in puerperal conditions.

I do not know how this patient was treated before she was brought to the hospital. Active treatment in every case is not absolutely necessary—I have known cases to get well without treatment; but this is running a great risk. Given a case of acute Bright's disease, not too far advanced, with the cause removed, and the immediate danger of the convulsions prevented, I do not know that it is necessary to pursue any specially active treatment. Rest in bed, with an easily assimilable diet, as one of milk, is generally all-sufficient. This woman is gradually improving, and will, I have no doubt, be as well as ever in a short time.

There are two other grades of complication of Bright's with pregnancy to which I desire to call attention, both of which are far more dangerous than that of which we have been speaking. The first is a puerperal case with Bright's disease, where the renal affection is not the immediate result of the puerperal condition, but where it has previously existed; for although these cases occasionally get well, the mortality is much higher than in those cases of which we have been speaking.

There is a second class of cases in which, in my experience, the prognosis is invariably fatal. A girl of eighteen or twenty, with Bright's disease, who subsequently marries, is almost certain to die in her first confinement. This is an exceedingly important practical point with reference to the question of marriage of girls with Bright's disease. If a woman has had two or three children, and then acquires Bright's disease, although the condition is more dangerous than where the renal condition comes on during pregnancy, she still has a chance of getting as near well as she was before she became pregnant. The probabilities are, however, that the kidneys are left a little more damaged than they were previous to pregnancy. The renal disease is better than it was during pregnancy, but a little worse than it was before pregnancy. It is not so with the primipara who had Bright's disease before marriage. Her marriage-bell is her death-knell. In a case like the one before us, however, where there probably was no affection of the kidneys previous to pregnancy, there is every reason to believe that recovery will be complete.

ORIGINAL ARTICLES.

CHRONIC DISEASE OF THE SHOULDER.

CASES WHICH SHOW THE INEFFICIENCY OF PASSIVE MOTION WITH OR WITHOUT AN ANÆSTHETIC AS A MEANS OF RELIEVING FIBROUS ANKYLOSIS.[1]

BY V. P. GIBNEY, M.D.,

PROFESSOR OF ORTHOPRDIC SURGERY IN THR NEW YORK POLYCLINIC.

AT a late meeting of the New York Orthopedic Society, now a Section of the Academy of Medicine, Dr. L. W. Hubbard presented a case in which he had performed excision for ostitis at this joint, and in the excellent paper which he read, the surgical aspects of the disease were fully discussed, yet very little was said concerning the treatment by forcibly breaking up the adhesions, and the results that follow such a course of treatment. During my service as interne at the Forty-second Street Hospital, there came under my observation, both in the indoor and outdoor departments, a number of cases of what seemed to be chronic ostitis of the shoulder in children. One of the duties I have imposed upon myself is that I should some day collect the histories of these cases, trace the patients, and learn the final results. I find myself with this duty still unfulfilled, and my only excuse is the one which we are so prone to plead, "lack of time." While a hospital interne I thought nothing of taking a list of the names of the patients and tramping over the city in search of their last residence, but since leaving the hospital my views on this subject have materially changed. I recall, however, a few of the cases to which I have referred, and I have no difficulty in noting the points to which my attention was then directed.

A child from five to eight years of age is brought to the outdoor department, the mother complaining of the shoulder being stiff and painful when passive or active motion is employed. The patient is well nourished, and gives the ordinary family history. A closer investigation elicits a tuberculous history in father's or mother's family, or an acquired diathesis in the child's history, a diathesis then called strumous, now called tuberculous. The history of the disability of the joint will extend over a few months or a year, perhaps. A fall, or a trauma of some kind is found, but sometimes no such cause can be found. On examination, there is found an appreciable degree of atrophy, a marked change in the contour of the parts, a drooping of the shoulder, the member hanging close to the side, a decided tenderness on manipulating the joint, a locking of the articulation by reflex spasm of the muscles when any passive motion is attempted, and an elevation of temperature readily perceived by placing the hand on the shoulder. The case differs from an ostitis of the hip or the knee in the absence of the severe exacerbations of pain and reflex muscular spasm. It is true that there is a history of exacerbations, yet they are not severe. The patient comes under treatment, which consists of a liniment, an alterative tonic, and passive motion twice a day. If the child comes into the hospital, the passive motion is made by one of the medical attendants quite regularly. The rule is to find the child shrink more and more as time goes on, especially if the physician be at all impressed with the importance of making vigorous movements of the shoulder. If the child be treated in the outdoor department this duty is entrusted to the mother, who begins quite zealously, but who soon becomes lax in the performance of her duty, and after awhile the patient ceases to attend. I have seen just such cases remain in the hospital for more than a year, and at the time of leaving the institution it was difficult to note any decided improvement. I have seen such cases a year or two subsequently, and the signs of disease were still present.

I speak not in disparagement of the hospital when I record this experience. These patients, from all I can learn, get the same treatment wherever they go. The time for the employment of passive motion is thought to be at hand, because the stiffness has continued so long. The weight of the arm is considered as an efficient means of making the extension, and the absence of exacerbations for a long period is construed into signs negative of the existence of disease. Nearly all surgical writers, and not a few authorities on orthopedic topics, caution us against permitting a joint to become stiff. Fixation, continued too long, is regarded by these writers as the cause of the ankylosis.

Gross (vol. ii. p. 1021) says:

"*Ankylosis* of the shoulder-joint may be caused by injury . . . eventuating in effusion of plastic matter. Such cases generally admit of cure, simply by breaking up the morbid adhesions under an anæsthetic, and then instituting a regular system of passive motion, aided by the use of the douche, sorbefacient liniments, and dry friction."

Johnstone (Holmes's *System of Surgery*, "Diseases of Joints," vol. iii. p. 280) says:

"Instead of applying the force employed simply in one direction, by attempting *at once* to straighten the limb—the first process is to move the joint in every sense, so as to render it as supple as possible. . . . When . . . any inflammatory symptoms produced by the force employed have subsided, it is time, if the case is one which allows of any hope of success, to adopt such measures as may tend to develop renewed mobility of the joints."

Bradford (same reference) says:

"Forcible motion is useful not only in joints absolutely stiff from fibrous adhesion, but also where some motion is possible, limited by single or partial adhesions."

The two quotations just made relate to joints in general, but Dr. Bradford, the American editor, speaking of periarthritis, on page 298, says:

"Forcible motion breaks down adhesions, and usually effects a complete cure, but sometimes two or three attempts are necessary before complete recovery."

Entertaining such views myself at the time Case III. came under my observation, I acted accordingly.

[1] Read at the February meeting of the Orthopedic Section of the New York Academy of Medicine.

Barwell (*Diseases of the Joints*, second edition, p. 359, Wood's Library), speaking of the shoulder, says, "the surgeon must trust to force only in order to reëstablish the movements of the joint."

Noble Smith (*Surgery of Deformities*, pp. 144, 145), after stating that *brisement forcé* requires great discrimination and judgment, gives Brodhurst's rules for its employment, and adds:

"Subsequent treatment by passive motion, friction, hot-air baths, or other emollients, may be necessary before the normal condition of the joint can be completely restored."

He further adds:

"In many bad cases free motion is never completely restored, and there is often a tendency to refixation."

Haward (*A Treatise on Orthopedic Surgery*, pp. 83–85) cautions against the too early employment of force in scrofulous joints, but urges its employment in stiff joints from other causes.

Sir James Paget (*Clinical Lectures and Essays*, first edition, p. 97) says:

"that too long rest is by far the most frequent cause of delayed recovery after injuries of joints in nearly all persons who are not of scrofulous constitutions. . . . Mere long rest stiffens them and makes them oversensitive, cold douches and elastic restraints and pressures make them worse, and nothing remedies them but movements, whether forced or voluntary."

Sayre (*Orthopedic Surgery*, and lectures published in different journals) advocates *brisement forcé* in selected cases, but relies more on attention to details of after-treatment for good results. Six or eight days of rest and traction elapse before daily passive movements are begun.

Brodhurst is the most ardent advocate, and in reading his book and his reports of results one somehow feels that they are too universally good to be true. For a history, however, of the treatment of ankylosis by this method his brochure on "Ankylosis" can be profitably consulted. And so on, I might enumerate author after author who counsels this mode of treatment.

Hugh Owen Thomas, of Liverpool, stands out conspicuously as opposed to the employment of force in the attempt to reëstablish motion in stiff joints. See his work on *The Hip, Knee, and Ankle.*

CASE I. *False ankylosis from ostitis (?), many years' duration; active and passive motion, emollients, and electricity; these means failing, forcible movements under ether; subsequent passive motion: restiffening of shoulder; seems to improve when not treated.*—The patient came under my observation on February 9, 1881. She was then fourteen years of age and complained of a dragging pain about the right shoulder, and an inability to get the hand to the head. She stated that she had suffered much since the September preceding, but that from childhood the arm had been "weak." With the experience which I have just recorded, I naturally inferred that this was "one of those cases" and that I now had opportunity of noting a late result. Any movement of the shoulder which I attempted caused pain and reflex spasm. The normal contour was absent and there was an atrophy of one inch over the shoulder, one and a quarter inches at the middle of the arm, three-quarters of an inch over the elbow, and the limb was one inch shorter than its fellow. With slight effort she was able to abduct the arm only four inches from the side. This distance could be increased by the employment of a little force, but the scapula moved with the arm. She continued under treatment until the latter part of March of the same year, the treatment consisting of poulticing, passive motion, and faradism. At this time finding no improvement, the case was referred to Dr. Wm. T. Bull, of the consulting staff, with the expectation that he would take her into the hospital and resort to free passive motion under an anæsthetic. She was admitted to St. Luke's Hospital, and the shoulder was freely moved in all directions under an anæsthetic. The usual after-treatment of passive motion was employed, and she came again under my observation a few weeks later.

At different times we have resorted to a course of treatment, such as faradism, hot water douche, and daily manipulations, but for the past two years we have been simply content with observing the case. I find on my record a note under July 19, 1884. The atrophy over the shoulder was still one inch, both shoulders having increased in size just one inch since the 9th of February, 1881. It will be better, however, to give the measurements at the different periods in tabular form:

COMPARATIVE MEASUREMENT.

	Shoulder.	Arm.	Elbow.	Length.
Feb. 9, 1881.	R. 11.	R. 6½.	R. 6¾.	R. 26.
	L. 12.	L. 7¾.	L. 7¼.	L. 27.
July 19, 1884.	R. 12.	R. 8¼.	R. 7¾.	R. 1 in. short.
	L. 13½.	L. 8¾.	L. 8.	
Sept. 6, 1883.	R. 12.	R. 8¾.		R. 25¾.
	L. 14.	L. 9.		L. 27.

On September 6, 1884, there was no bone or joint tenderness discovered, and it was her belief that she derived no benefit from treatment, and I confess that I was unable to convince her to the contrary. Since that date to the present she has been at work, and, so far as I have been able to learn, she has been free from pain, and has experienced very little inconvenience. Her shoulder is still stiff, yet she is able to use her hand for dressing and eating.

CASE II. *Chronic ostitis, with great trophic changes; cause, probably a sprain; brisement forcé, followed by daily passive movement; restiffening of shoulder; subsequent improvement.*—I have a companion case to this in a patient who came under my observation on June, 1883, was eighteen years of age at the time, and was referred to me by Dr. Martin Burke. She reported that three months before this date a friend in play had given the arm a sharp pull, which caused her some pain at the time. She was quite positive that this was the beginning of her lameness. I found one inch shortening of the limb, a marked degree of atrophy (the measurements, unfortunately, were not recorded), a depression under the acromion process, pain on moving the joint, and a grating crepitation. Use of the arm, however slight, aggravated the pain, and she complained of being unable to rest at night. The faradic reaction was good, and, as compared with the reactions on the sound side, were normal. I made a diagnosis of chronic osteo-arthritis of the shoulder, and employed about the same treatment as was adopted in the other case. A sling was employed, however, to afford some protection. After a month's treatment without benefit, I had Dr. Bull see the case in consultation, and he advised free movement under ether, but the patient objected, and it was not until November 6, 1883, that she decided to submit to the treatment proposed. At this date, under ether, in St. Luke's Hospital, Dr. Bull moved the arm about freely in all directions, encountering less resistance than he had anticipated. She remained in the hospital a month or so, and was discharged at her own request. During her stay in the hospital the usual daily passive motion was resorted to, and her failure to

derive the benefit expected was naturally attributed to the lack of vigor in carrying out the after-treatment, and her desire to get home. From that time to the present she, too, has been under occasional treatment of a simple nature, and the improvement really seems more marked during the remissions of treatment. Since May 10, 1884, I have recorded measurements, and they are as follows:

COMPARATIVE MEASUREMENT.

	Shoulder.	Arm.	Length of arm.
May 10, 1884.	R. 13.	R. 9¾.	R. 10¾.
	L. 12.	L. 8	L. 9¾.
Sept. 30, 1884.	R. 13¼.	R. 10½.	R. 11
	L. 12	L. 8½.	R. 9¾.
Oct. 19, 1885.			L. 10¾.
	L. 12.	L. 8¾.	R. 9¾.

In May, 1884, she could abduct the arm to an angle of 135 degrees. There was a little rotation and very little tenderness. From time to time I have noted a little increase in the arc of motion, and it is only recently that she has complained of any severe pain. This was on January 19 of the present year. I failed to find any extra heat or signs of progress of the disease. Her general health had suffered, however, and under a tonic her pains diminished. This case had been submitted to the usual treatment that authorities advise, but operative interference has at no time been suggested. She has been able to earn a living, and for a year or two has been free from exacerbations, with the exception of the slight pain recently, for which a cause was readily found.

It has occurred to me, while observing the two cases I have just reported, that an exsection in the second one, perhaps, might at some time be indicated. Both have been seen by several of my surgical friends, but the conservative plan has been adhered to, and it is my impression that the final results will justify me in the plan that I have adopted.

The arrest apparently of growth of the humerus in each of these cases seems due to a lesion at the epiphysial line, in the cartilaginous layer separating diaphysis from epiphysis.

In the humerus the nutrient artery takes its course toward the elbows, and this may account for the arrest of growth in the shaft when the upper epiphysis is diseased.

Mr. Edmund Owen, in a clinical lecture "On Injuries of the Epiphyses," published in a recent number of the *British Med. Journal*, says:

"Without entering into tedious detail, and with the view of simplifying the matter, one may call to mind the fact that the special nutrient arteries of the long bones take the course in their respective bones *toward the elbow* and *away from the knee*. Now, the epiphysis toward which the nutrient artery runs is invariably the first to join the shaft, therefore the elbow-ends of the humerus and radius are attached early, whilst the knee-ends of the femur and tibia are attached late. Thus, it is evident that in the growth of the arm the integrity of the elbow epiphyses will be of secondary importance to those near the shoulder and wrist; whilst, in the lower limb, the knee-ends of the femur and tibia are of chief concern."

Mr. Jonathan Hutchinson (*British Med. Journal*, July 25, 1885) makes the following statement:

"I have seen many examples of arrested growth in long bones owing to injury or disease of the epiphyses. No bone shows this arrest more definitely or more frequently than the humerus. To the growth of this bone, the upper epiphysis is of main importance, and its complete detachment is not very infrequent."

When we have an ostitis of the knee the epiphysis is usually elongated, and we have actual lengthening of the femur. In an analysis of sixty-eight cases of ostitis of the knee, Dr. John J. Berry, formerly of the Hospital for the Ruptured and Crippled, found the femur

1	inch longer than its fellow in	2	cases.
¾	inch " "	10	"
½	inch " "	19	"
⅜	inch " "	18	"
¼	inch " "	8	"

"In 6 there was an average shortening of ⅜ of an inch, while in five there was no change in length perceptible." (*Trans. Connecticut State Med. Soc.*, 1883, p. 108.)

His observations are but confirmatory of those of Hufland, Helferich, and Wagstaff. In synovitis the bone is either shorter or remains unchanged. A reason may be offered why the humerus does not grow in length by hypertrophy, while the femur does, apart from the direction of the nutrient artery. It is this: In an epiphysitis or diaphyso-epiphysitis of the proximal end of the humerus the reflex muscular spasm holds the head pretty well secured in the glenoid cavity, and the articulation is normal so far as the head of humerus and glenoid cavity are concerned. Pressure is not removed, and the epiphysis expands by hypertrophy rather than elongates. In ostitis of the lower epiphysis of the femur, the reflex spasm is most marked in the flexors, and the knee soon assumes a semiflexed position, and later subluxation backward often occurs. Pressure is thus removed from the distal end of the femur, and hypertrophy in the vertical axis can take place without opposition.

The absence of suppuration in the cases presented, leads me to suspect sclerosis ossium (Billroth), or condensing ostitis (Volkmann). Billroth declares that the causes of sclerosis are very obscure, and that it is rarely recognized with certainty during life. In specimens reported by Macnamara, I am unable to find any sclerosis limited to the epiphysis. The lesion is a diffuse one, and it is sometimes called a *diffuse hypertrophy of bone*.

Mr. Jonathan Hutchinson has placed on record in the *British Med. Journal* for July 25, 1885, a most remarkable case of arrest of growth of one humerus:

"In the case which I am about to relate, the humerus of the left arm measures eight and a half inches, against twelve and half of its fellow. This very remarkable difference has resulted from an injury, followed by inflammation and ankylosis, at the age of a year and a half. The injury is believed to have been slight, but it was followed by inflammation, and the arm was said to have been kept at rest for six months. Thus, there is no proof forthcoming that the epiphysis was detached. It is certain that the result has been bony ankylosis between humerus and scapula, and the remarkable dwarfing of the bone which I have mentioned. The arrest of growth has affected the scapula and clavicle as well as the humerus, but in them it has resulted in slenderness only, not in diminution of length. The

whole clavicle is thin, certainly not more than two-thirds of the thickness of the other, and the long and slender acromion projects sharply over the shoulder. The humerus is slender as well as short, especially in its upper part, and the rotundity of its head is quite lost. There is no very obvious wasting in the lower part of its shaft, and the two elbows seem to be much alike. No difference that can be measured exists in the forearms or hands. The subject can do anything below the elbow, and his power of moving the scapula is also remarkably great. The deltoid is, of course, quite atrophied. He can barely get the hand to touch his mouth, but can manage his fork well. He can put his hand behind his back, and fasten buttons, etc., though with some difficulty."

My experience in the forcible movement of the shoulder-joint under ether in cases where the movements are so restricted, has led me to look with little favor upon this plan of treatment. It is difficult to draw the line between cases that should be treated in this way and those that should not, and I am convinced that the differential diagnosis of shoulder-joint diseases, is not fully mastered. I am willing to admit that the fault may be my own, yet I find in my intercourse with fellow practitioners that my own experience is not unique. The older surgeons are slow to recommend this treatment. Some four or five years ago I took considerable credit to myself in diagnosticating a rheumatoid periarthritis in the shoulder of a man who was referred to me by my friend Dr. Bull. The movements of the joint were very nearly perfect. In extreme flexion and extension, however, resistance was encountered, and the patient complained that his sufferings were greatest when the arm was not in use. If, for instance, he walked a long distance, pain came on and soon became so great that he had to brace himself against a fence or lamp-post in order to get relief. At night he had learned to prop his arm on pillows in order to secure sleep. Ether was administered, the few adhesions were broken up, and his recovery was perfect.

With this case in my mind, and a series of similar cases recorded by Duplay (*Gaz. Médicale de Paris*, 1872, No. 37), I felt quite sanguine in treating a patient referred to me by Dr. Webster, in September of last year.

CASE III. *Rheumatic scapulo-humeral periarthritis; brisement forcé three times within six weeks; no relief; pains and stiffness aggravated.*—This gentleman gave me the following history: In May, 1885, without known cause he began to be annoyed with pains in his left shoulder. He had been sleeping in damp apartments, and had at times suffered from what he supposed were rheumatic pains. From May until September the pains about the shoulder had increased, and were aggravated by certain movements, such as abduction, and extension. On examination I found no atrophy, no extra fulness, no joint tenderness, and indeed the shoulder differed very little in appearance from its fellow. On deep pressure under the acromion process and over the back of the shoulder I found some tenderness. The rotation was about one-half the normal and he could abduct the arm to an angle of forty-five degrees without tilting the scapula. I fail to find any history of pain when the limb was at rest, and in this respect the case differs from the one I have just narrated. I advised, however, the employment of force, and on the 9th of September under ether I moved the joint in all directions, getting a distinct "snap" as I performed extreme abduction. I determined to employ passive motion myself every day, but by the 23d of Sept. the result was extremely unsatisfactory; so on this date I repeated the operation under ether, and on the 23d of Oct. did so again. At this time I adopted a different after-treatment, namely, hot fomentations and rest until Nov. 2d. I then resorted to massage and the Paquelin cautery. A record of the notes in detail is unnecessary. It is enough to state that I had the full coöperation of the patient at every step of treatment, and that no details were omitted in carrying out any plan adopted. By Nov. 9, we both concluded that there had been no improvement. It was a fact, however, that the sufferings of the patient had been aggravated and that his shoulder was much stiffer than when treatment was begun. At my request he called to see me yesterday and reported that he had done nothing in the way of treatment for three months. He has during this time had comparatively little pain; he finds his arm more useful, and I find to-day an increase of the arc of motion; there is no joint tenderness, no crepitation, no atrophy, no shortening, no infiltration.

I do not believe that passive motion is called for in chronic ostitis of the shoulder, or in chronic rheumatic periarthritis where the adhesions are extensive. It was my intention to submit the patient last named to a prolonged course of iodide of potassium in large doses, but his stomach rebelled even with the usual precautions, and the drug was discontinued.

Before concluding the cases which bear upon the title of my paper, I desire to present the following, which is interesting from a diagnostic point of view.

On October 19, 1885, Dr. Henry Schweig referred to me a male child two years of age who was brought by Dr. Nasher, under whose care the patient is at present. At the time of my first examination I found a slight atrophy at the shoulder, restricted movements, especially in outward rotation. The little fellow was so frightened at that time that I failed to make a satisfactory examination, but at the next visit, Nov. 10th, I found the signs such as can be shown this evening. At the back of the shoulder was a small cyst-like body apparently bursal. The pectoral muscles seemed contracted and it was difficult to execute complete external rotation. The scapula seemed smaller than its fellow, the shoulder dropped a little, and the albuminoid crepitation of the joint was exaggerated. There was about three-quarters of an inch shortening of the limb. I could not make out any evidence of old fracture on careful handling of the bones, but the doctor informs me that at the time of birth the attending physician reported a fracture of the scapula. From the slight degree of shortening and from the inward rotation of the limb, I am led to infer that a diastasis occurred at birth, and that by the action of the subscapularis, the latissimus dorsi, and the teres major, rapair in a normal position was prevented. This to my mind seems the most plausible explanation.

My paper has already exceeded the limits I had intended, and I shall have to omit a discussion of the mechanical appliances best suited for ostitis of the shoulder. Indeed, the anatomy of the joint and the position of the limb seem to demand very little in the way of mechanical support. It has been my aim to dwell chiefly upon the clinical history of the disease and upon the inefficiency of passive motion.

23 PARK AVENUE.

INDICATIONS AND CONTRAINDICATIONS FOR THE IMMEDIATE SUTURE IN OBSTETRIC LACERATIONS OF THE PERINEUM.[1]

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The management of the perineum, both during and after labor, has often been the subject of animated controversy. The frequency of the occurrence of laceration of this structure during the passage of the child's head has, in the first place, directed the attention of accoucheurs to the suggestion of various methods by which this accident may be prevented. Thus, it has been proposed by some that the passage of the child's head over the perineum should be expedited; by others, that it should be retarded; whilst a third class maintain that it should be left to nature alone—in other words, that the attendant should remain perfectly passive. The fact that lacerations of the perineum occur in spite of all three of these measures, proves that there is no infallible means by which this accident can be prevented—that it is caused frequently by conditions beyond our control. These factors may be the faulty anatomical structure of the mother's parts or of those of the child, an absolute or relative disproportion between the size of the fœtal head and maternal structures, or a wrong direction of the expellant forces during parturition, both as to time and quantity, due either to constitutional weakness or a want of proper self-control.

Since, therefore, prophylactic measures will often fail in preventing a perineal rupture, we will be forced to encounter this accident and adopt the proper means for its repair. The first indication which presents itself to us is, of course, to put the structures in as natural a condition as they were before the occurrence of the laceration. But just at this point authorities differ. The question may be asked, Shall we simply leave the torn surfaces as they are, trusting to the healing powers of nature alone, or shall we bring them together by the aid of sutures? If the latter, shall we introduce sutures immediately after the completion of the third stage of labor, or at some later time, varying from a few days to several months? These are the questions that have been discussed both by older and by later accoucheurs, and the partisans for the one as well as for the other have brought forward their arguments in defence of their respective views.

This controversy has been somewhat influenced by the time in which these opinions were entertained, so that it may be said that while the older masters were mostly in favor of the so-called "let-alone" treatment, our modern authorities in a great majority are in favor of prompt artificial repair. It must not be understood, however, that the former did not recognize the necessity of closing a large chasm when caused by labor, but they did not deem it necessary to close up a rent of the perineum as it usually occurs. In a general way it may be said, then, that some of the authorities were opposed to the immediate suture of a torn perineum, no matter what its extent. These, however, were a minority. The next class admitted the necessity of the immediate repair when the sphincter ani was involved, but discountenanced any operative measure as long as this muscle was intact; these formed the majority. At the present day, the great majority of obstetricians demand the immediate repair of every lacerated perineum, whether complete or incomplete, except an insignificant rupture of the fourchette, or a little beyond it, whilst a few urge the union by suture of every laceration, no matter how slight.

For a better understanding of the subject, it is necessary to make a proper distinction between the different varieties of laceration of the perineum. For all practical purposes it is sufficient to divide these ruptures into *incomplete* and *complete*. An incomplete rupture is one which may involve any part of the perineum with the exception of the sphincter ani; it may, therefore, consist of a simple tear of the fourchette alone, to a rupture of all the perineal structures up to, but not including, the anus. When this laceration also involves the anus, either tearing the sphincter alone or extending up any length along the rectum, it becomes a complete rupture. For greater convenience, however, another arbitrary division has been made, in order to designate the extent more minutely. Thus ruptures which begin at the fourchette and do not extend further than to about the centre of the external perineal surface, have been designated lacerations of the first degree; when this laceration extends to the sphincter, it is called one of the second degree; and when the latter is also involved, the third degree. All incomplete lacerations belong, therefore, to the first and second, all complete ruptures to the third, degree. Some authors have also added a fourth degree—when the whole perineum is ruptured, both the commissure and anus, however, remaining intact—a so-called *central* rupture. A fifth variety has been described—when the internal sphincter ani is torn; and one author has distinguished between deep and superficial lacerations, each of the first, second, and third degree. For our purpose, however, it is sufficient to assume the three degrees as above stated, but I would suggest that for anatomical reasons the first degree include simply those ruptures in which the skin and subcutaneous cellular tissue (loose fascia) alone are torn, no matter what the length; that the second degree comprise those cases in which, besides the above, also the pelvic fascia and muscular tissue (tendinous centre) are torn; whilst the third degree, in addition, includes the anal sphincters, one or both. This division seems to me to be the more rational, since the perineal body is somewhat triangular in shape; therefore, the further the rent extends along the cutaneous surface the deeper it will also extend up along the vagina, and, consequently, the greater the number of structures involved. The first is, therefore, a *cutaneous* or *vulval* tear, the second a *vaginal* rupture, and the third an *anal* or *rectal* rent.

I crave indulgence for this rather elementary exposition of the subject, but I thought it proper to recall these facts for the better discussion of what follows.

If this anatomical division would at the same time

[1] Read before the Cincinnati Academy of Medicine, April 12, 1886.

indicate to us the proper method of dealing with these several lacerations, the subject could be dismissed with a few words; but, unfortunately, clinical experience has shown that there is a great difference in the ultimate results in individual cases, although the character of the injury may be otherwise the same. Thus it has been shown upon good authority that extensive lacerations, sometimes even involving the anus, have healed spontaneously, if not by first, at least by second intention. On the other hand, it has also occurred, that where the greatest care has been exercised in bringing the torn surfaces together by sutures, they have not become united. This proves that the anatomical feature is not the basis upon which alone we can construct a formula for treatment, but that other things must be taken into account, as the condition of the patient, both general and local, the time and method of suture, the proper after-treatment, etc.

To inquire into these conditions is my purpose this evening, and, if possible, to make such deductions as explain the causes of success in one or failure in the other. It occurs to me that an examination of the arguments both for and against the immediate repair of a laceration, as they have been advanced by different authors, might best serve our purpose.

The opponents of the immediate suture claim:

1. That the patient is already too much exhausted from the throes of labor to undergo another, oftentimes extensive, operation immediately afterward.

2. That posture alone will suffice in effecting spontaneous union, rendering the use of sutures unnecessary; or, *per contra*—

3. That a lacerated wound, such as occurs in a perineum during labor, never heals by first intention, even after union by suture; and

4. That such union, even if it could occur, would be prevented by the constant flow of the lochial discharge, which by no contrivance can be kept from the fresh wound.

5. That a perineal laceration, as seen just after labor, seems much larger than it really is, on account of the abnormal stretching of the parts.

6. That the operation is itself a confession of carelessness or ignorance in the management of the case.

In answer to these objections, the advocates of the immediate operation claim:

1. That the patient is in a better condition to bear the operation immediately after labor than subsequently, on account of the obtunded sensibility of the genital parts.

2. That posture alone will not suffice for primary union, because the least change in position will disturb the apposition of the surfaces.

3. That although the rent in the perineum is a lacerated wound, it partakes almost of the character of an incised wound, and the surfaces will readily unite if brought together immediately after labor.

4. That in order to prevent the irritating action of the lochia on the torn surfaces the wound ought to be closed up by suture.

5. That, no matter how slight the laceration, it ought to be sutured, in order to restore the parts to their primitive condition; also because the slightest rent may endanger life by sepsis.

Let us now examine these arguments critically, by comparing one with the other in the proper order.

First, as regards the condition of the patient. It is true that immediately after labor a woman is thoroughly exhausted, and needs nothing more than absolute rest. This exhaustion is proportionate to the duration of labor, and strength of the individual. In a natural labor, however, where there has been no obstruction, except that of the perineum, it can hardly be held that the patient is so thoroughly outdone that her health, or even her life, is endangered by an operation like that of perineorrhaphy. There may, however, be exceptions in cases of dystocia, or pathological conditions of the mother, as in eclampsia, the attacks continuing after labor, violent hemorrhage due to non-contraction of the womb, etc. Or, also, the parts may have been subject to long-continued pressure, causing brittleness, œdema, etc., as we shall see further on. Ordinarily, however, the exhaustion is not excessive. On the other hand, it is true that the sensibility of the parts is temporarily obtunded just after labor, rendering the introduction of sutures less painful at that moment than some time afterward. Occasionally, however, the parts are exceedingly sensitive, as I have witnessed in several instances, when the mere insertion of the point of the needle caused an expression of great pain. If need be, however, an anæsthetic can be resorted to anew, or, if such an agent was used during the delivery of the child followed immediately by that of the placenta, the patient can be kept under its influence until after the completion of the perineorrhaphy.

Second and third, as regards the influence of posture over the union of the torn surfaces. This involves the question of union by first intention. The opponents of immediate operative interference divide into two contradictory classes. Those of the first group claim that union may take place after simple apposition of the parts, whilst the second class denies that in a lacerated wound union can occur by first intention under any circumstances, even after approximation by suture. That well-authenticated cases of union of a lacerated perineum by simple posture have been recorded, is well known. It is doubtful, however, whether such union ever took place by first intention, or if the parts were really in as good condition afterward as before the occurrence of the accident. A lacerated wound usually does not heal by first intention if the edges are very ragged and the parts contused. This is our experience in other parts of the body, and there is no reason why the perineum should form an exception to the rule. On the contrary, the peculiar hidden condition of the perineum would render such a happy result less likely to occur here than perhaps anywhere else. If we add to this the bruising and contusion of the parts, either from the introduction of the hand, or the use of instruments, or the long-continued pressure of the head of the child upon the soft structures of the mother, they certainly are still less in a condition favorable for immediate union. This cannot be obtained by the use of suture, much less from posture alone. To obtain direct primary union, the rent must approach in character as much as possible that of an incised wound with clean-

cut edges, and, furthermore, the vitality of the parts must not be impaired or destroyed. If the perineum was thin, and the tear a rapid one, the latter appears almost like a cut, and with proper apposition of the edges, other conditions being favorable, may heal up as perfectly as an incised wound. It is possible that in such a case apposition by posture alone would suffice, but it is exceedingly doubtful if so quiet and undisturbed a position can be maintained by any woman long enough for the parts to heal. It is, therefore, more than likely that in these cases union occurs by second intention.

Then, again, the extent of the laceration will determine the manner of union. If the rent be one of the first degree, simply cutaneous, the parts may be readily held in apposition; but if it involve the muscular structure, invading the perineal body, and constituting a laceration of the second, or even of the third degree, the retraction of the muscles will certainly cause the rent to gape, and no form of posture alone will bring the torn muscular parts again into apposition. Here the suture is necessary, and the surfaces must be in such a condition as to permit close approximation. We therefore conclude that if the lacerated wound has smooth edges resembling an incised wound, or if the lacerated wound has been converted into an incised wound by trimming off the ragged edges, and there has been no undue pressure to disturb the circulation of the parts, we may reasonably expect union by first intention.

Fourth, as regards the influence of the lochia on the healing process. A very important influence over the subsequent condition of the laceration has been attributed to this discharge by both parties. The partisans of the "let alone" treatment claim that it will prevent union even after the application of the suture, while the advocates of immediate operation deny this allegation, and rejoin that if does possess any irritant properties, it will for this very reason interfere with the union of the open wound. With the investigations in regard to the cause and nature of septicæmia and puerperal fever, the lochia have attained a still greater notoriety. It is justly claimed that the laceration of the genital tract, be it ever so slight, offers a ready entrance for bacteria or germs of infection; and that the decomposed lochia are the carriers of this infection. A powerful argument is therefore advanced in favor of shutting out these dangerous microörganisms from the open wound by closing up its edges by means of suture. If this procedure will effectually prevent septicæmia, it would be incumbent upon us to look after the smallest break in the maternal tissues, as well as the largest; it would be imperative to pay as much attention to lacerations of the first as of the third degree. It is for this reason also that some authorities insist upon the suture for the minutest laceration.

Two questions present themselves here: (*a*) Is it certain that the germs of infection are introduced only from without; or may they also develop within the body. This question is still *sub judice*. Most authors hold that there are several forms of puerperal fever, one of which may be due to the introduction of poison from without (exosepsis), the other due to decomposition in the body of the patient (endosepsis). Lately, however, the opinion is gaining ground that the poisons of puerperal septicæmia and puerperal fever are always introduced from without, and that puerperal septicæmia is nothing else than the ordinary septicæmia of wounds. If the former be true, the closest attention to wounds would not prevent, in all instances, septicæmia; if the latter, too much attention could not be paid to it. (*b*) Can we certainly exclude the entrance of these microörganisms into the tract of the wound? It is positive that the mere bringing together of the edges of the wound will not prevent infection; something more is necessary, and that is thorough antisepsis. It has always been a question to my mind, however, whether the daily irrigation—once, twice, or even thrice a day—is sufficient to destroy the bacteria of decomposition. If we could treat a wound as aseptically in this region as in other parts, either by keeping up a continual irrigation or applying a permanent antiseptic dressing, we might reasonably suppose that we had prevented any chance of bacterial infection. It is, however, impossible to close up the many orifices in this vascular region so hermetically as to prevent the absorption of some septic material. Nevertheless, I would not discountenance the use of antiseptic injections where septicæmia is suspected, but simply desire to raise a mild question whether we really accomplish as much as we suppose. On the other hand, I doubt whether the lochia themselves are a source of irritation. They are a natural excretion of the body, just as the urine is, and if the latter fluid does not prevent the proper healing of a lithotomy wound, it does not appear why the former should be unfavorable to the healing of a wound following parturition; provided stagnation is not permitted, the lochia ought not to interfere. It is, perhaps, this precaution of cleanliness which is as much of importance as the use of the antiseptic itself.

Fifth, as to the size of the wound after parturition. If one will observe the perineal rent just as it occurs after the passage of the child's head or shoulder, and then will reëxamine it after a day or two, he will be struck with the difference in length. As the head bulges the perineum before it, it distends this structure to three or four times its usual size in the non-pregnant state. A rent of one inch or an inch and a half in extent, if measured by the size of an ordinary perineum, would involve this structure in its entirety; whereas, upon retraction, it may comprise only a fractional part of an inch. This is especially evident when the laceration is one of the first degree, simply involving the cutaneous surface and the subcutaneous cellular tissue. After the head has passed the vaginal ring it carries the elastic tissues before it for a good distance, and if the perineum be torn from its edge to the muscular parts only, the tear may, nevertheless, appear of large size. As we have stated before, if the fascia and muscular tissue are not involved, no lateral traction on the sides of the wound will occur, and such a laceration may, therefore, heal spontaneously, other conditions being favorable. It is, therefore, proper to judge of the size of the rent rather by what remains between the angle of the wound and the rectum or

anus, than from its depth from its beginning in the posterior commissure to its termination in the perineum. It is true, that when the parts have been greatly stretched we can ascertain the exact depth of the laceration after the lapse of considerable time, but at this period we have lost most of our chance of securing union by first intention. This retraction of the perineum has been dwelt upon especially by those who do not favor immediate repair of the lacerated perineum, but prefer to wait twelve to twenty-four hours, until involution has already somewhat taken place, when the parts may offer a better guide for the number and extent of the sutures. That a small rent may leave a great deformity is not true, otherwise we would find a great many more cases requiring the secondary operation for prolapsus of the uterus, rectum, bladder, etc., than we do meet. Consequently, if the laceration be simply cutaneous, and there be no other indication, as danger of sepsis, etc., it may be safely left to nature, taking care only to keep the patient as quiet and as cleanly as possible.

The last point, that the operation is itself a confession hardly requires answer. It would be cowardly, indeed, in an accoucheur to withhold the truth from the patient, or, at least, her friends, in an extensive laceration, simply to protect himself. It has already been stated that lacerations will occur in the hands of the most attentive and skilful, because we cannot control all the causes. If, however, carelessness or ignorance has been the cause, so much the more reason for the attendant to make at least a partial reparation by sewing up the laceration. I would only except such instances in which the patient is of an extremely nervous temperament, inclined to exaggerate the smallest ills, and the laceration is very insignificant—a simple tear of the fourchette, or a little beyond.

From the foregoing, I draw the following conclusions:

1. A laceration of the first degree, as long as only the skin is involved, may be left to heal by postural apposition, provided there is no danger of septic infection. If there should be any danger of the latter, although the closing of the wound will not altogether prevent infection by absorption, it will at least lessen this danger, especially with antiseptic treatment.

2. A laceration of the second degree, when the fascia and muscles are torn, ought, if possible, always to be repaired immediately after the occurrence of the laceration, provided there are no complications on the part of the patient, as extensive œdema of the parts, great bruising, etc. In such an event, we cannot expect union by suture immediately; it is, therefore, necessary to wait a certain length of time, from a few hours to a few days, in order to give the parts a chance to recover their proper vitality and tonicity; or, after having pared the edges, we may introduce the sutures, and gradually tighten them as the swelling subsides. Just here I would direct attention to the tension of the suture. If it be drawn too tight, the vessels may be strangulated, and union may be thus prevented; if, on the other hand, too loose, the surfaces will recede from each other as the swelling subsides, and the stitches will serve to no purpose. Consequently great care must be exercised in the proper tension of the sutures, and if the parts do not look favorable for primary union it is better to wait a few hours, then place the patient under an anæsthetic, pare the edges, and proceed with great care.

3. Lacerations of the third degree produce such a deplorable state of the patient afterward, that every attempt should be made to repair the accident immediately. Even if we should not be wholly successful, we may be so at least partly, by converting a laceration of the third degree into one of the second degree, which is vastly more comfortable than the loss of the sphincter power of the anus. If very urgent reasons should prevent us from attending to this accident immediately after labor, we should at least select the earliest possible time to repair the accident, proceeding with all due care and skill, as in the second operation.

A last word as to the form and method of suture. In the early part of this paper it has been said that the length of the laceration along the external perineum will, as a general thing, be also indicative of the extent upward into the vagina. It will be seen that whilst laceration of the first degree would require but very superficial sutures, those of the second and third degrees must be united by deeper and stronger sutures. If the fascia or tendinous centre of the perineum be torn, the divided edges must also be brought together, which can only be done by deep sutures, the depth being proportionate to the depth of the laceration upward. There can be nothing more reprehensible than the mere cutaneous union of a large and deep laceration. The lower line is truly approximated, but the upper remains open, allowing the fluids to become pocketed, and thus preventing union, and danger of septicæmia. It is better to leave the rent open to allow at least free drainage. If the rectum and vagina be torn a high distance upward, it may become necessary to unite each separately.

For ordinary cases I prefer silk, as it gives less discomfort to the patient, is ready at hand, and more easily introduced. It possesses, however, the disadvantage of becoming septic by the absorption of septic material. This may be overcome by laying the strand first in a solution of carbolic acid or corrosive sublimate, and then keeping up irrigation by an antiseptic solution afterward. Another disadvantage is, that it cannot be tightened, if found after a while too loose. It is, therefore, not adapted for those cases in which there is excessive swelling. Silver wire possesses the great advantage of causing less danger of sepsis, and it may, also, be tightened afterward by simply giving it an additional twist. It is, however, less comfortable to the patient, for the slightest movement on her part will cause the ends to strike some portion of the body in the vicinity of the united edges. As silver wire is, however, stronger, it is better adapted for the cases in which the suture ought to be introduced at a great depth—for example, in complete lacerations. If preferred, the wire may also be used for the deep, while the thread is employed for the superficial sutures.

MEDICAL PROGRESS.

Utility of the Antipyretics.—In an elaborate article thus entitled, Prof. Desplats emphasizes the following conclusions:

1. Antipyretic agents, in moderating the temperature, moderate also all the other febrile phenomena.

2. That fevers are hus rendered not only less painful to the patient, but also less grave, and that the resultant complications are rare.

3. That the disadvantages involved in this treatment are so slight as to be neglected.

4. That the antipyretic employed, whether cold or tepid baths, or chemical compounds, should depend upon the peculiarities of the case.—*Rev. de Thérapeutique*, April 1, 1886.

The Best Method of Removing Foreign Bodies from the Ear.—Dr. Jonathan Hutchinson writes as follows in the *British Medical Journal* of April 10, 1886:

I am induced to draw attention to a method of treatment which I long ago advocated, and which is so simple and efficient that it almost supersedes the need of knowledge. It is the use of a silver wire-loop, instead of either forceps or scoop. I have never, since I was a student, used either of the latter instruments; and, for the purpose of extracting hard bodies from the ear, I hold that they are most dangerous. With a flexible silver wire-loop, or, if need be, with two placed at right angles, I have repeatedly succeeded when all other means had failed. Thus, not only is the loop quite devoid of danger, but it is both more easy of use and far more efficient than any other method. It is impossible that it can injure the membrana tympani, or the walls of the canal. The method of procedure is, after having put the patient under an anæsthetic, to introduce the loop gently into the ear, and turn it about until it is believed to have got behind the foreign body. This it will often do at once; but sometimes a little patience is necessary. In one instance, I took out a piece of heavy lead in this way with very little trouble, using two loops at right angles with each other. The simplicity, safety, and efficiency of the method make it desirable that it should be better known.

Physiological Action of Adonidin.—Dr. H. A. Hare gives the following conclusions derived from an experimental study of adonidin:

Adonidin in all doses increases arterial pressure by stimulating the vasomotor centres, and by increasing the cardiac force.

In moderate doses it increases the pulse-rate and force from the first, but when large toxic doses are given, it primarily slows the heart by stimulating the pneumogastric, and then increases pulse-rate by depressing the inhibitory nerves, and stimulating the accelerator apparatus.

The slowing of pulse-rate is also in all probability due in part to increased arterial pressure, as under these circumstances the blood-paths are greatly diminished in calibre.

On the nervous system the drug has but little action, unless the quantity administered be enormous. Under these conditions it paralyzes the sensory side of the cord, but has no effect on the motor tract, or on the efferent or afferent nerve trunks.—*Therapeutic Gazette*, April 15, 1886.

Effect of Drugs on the Automatic Movements of the Stomach.—Schutz has experimented upon the effect of certain drugs when introduced into the excised stomach of a living dog, the viscus being maintained at the temperature of the body in a moist chamber.

Before the introduction of the drugs, spontaneous movements are observed, the tendency of which is evidently to push the gastric contents toward the pylorus. Many poisons retard or entirely inhibit this movement; such are atropine, cocaine, nicotine, pilocarpine, and chloral. Other drugs render the movements atypical and more numerous and rapid, as strychnine, minute doses of nicotine, caffeine, veratrine, emetine, apomorphine and tartar emetic. Others, again, do not directly hinder the movements, but produce the result that the muscular coat, once contracted, becomes relaxed either not at all or only very slowly; these are muscarine, physostigmine, digitaline, helleborine, and scillaine.—*Centralb. f. d. gesammte Therapie*, April, 1886.

Bromine in Diphtheria.—Dr. P. Hesse, of Griefswald, calls attention to the fact that bromine, as a local medicament in diphtheria, has held its own, for some twenty years, better than any other remedy, and recommends for inhalation the following solution:

Pure bromine,		
Potassium bromate . . .	āā	1 to 2 parts.
Distilled water	400	"

Without regarding bromine as a specific, Hesse maintains that, properly applied, it is less fallible than other medicaments. Certain precautions and limitations in the application of the treatment are indicated, viz.:

1. Treatment to be instituted as early as possible.

2. Direct application by the brush should not be made.

3. The frequency of application, and the concentration of the solution used for inhalation should be conditioned by the severity of the case, and the degree of congestion induced in the pharyngeal mucous membrane.

4. The solution should always be fresh, and the treatment should be accompanied by ice-cold applications to the neck.

5. The method is contraindicated in laryngeal diphtheria, in bronchitis, and in affections of the lungs.—*Deutsches Archiv f. klin Med.*, March 24, 1886.

Salicylate of Sodium in Iritis.—At the meeting of the Baltimore Academy of Medicine, held February 16, 1886, Dr. Samuel Theobald referred to some interesting results he had recently obtained by the use of salicylate of sodium in iritis, occurring in patients with a history of inflammatory rheumatism.

Three weeks ago a young lady had called to see him. She had a most intense plastic iritis, pupil perfectly immovable. She had only perception of light, and could not count fingers at the ordinary distance. She was ordered sodium salicylate, and in a few days she obtained much relief. This salt was then withdrawn and iodide of iron ordered. She did well until the end of several

days, when she reappeared, complaining of the same trouble, which increased in intensity until, at the end of two days, she was in the same condition as originally. The salicylate was repeated, as well as the atropine drops locally, and mercurial inunctions to temples. Cathartics were ordered, and in *two days* she was so very much improved that vision equalled $\frac{20}{44}$, and the media was sufficiently clear to permit satisfactory inspection of the optic disk.

She had had some glaucomatous tension, but this did not prevent his ordering atropine, nor interfere with the physiological and therapeutical action of the drug.—*Maryland Medical Journal*, March 16, 1886.

Hereditary Phthisis.—Sirena and Pernice have carefully examined the testes and ovaries of persons dead of phthisis, and have as yet been unable to demonstrate microscopically the presence of tubercle bacilli.

Nevertheless, by the intra-abdominal injection, with proper precautions, of infusions of the semen or ovaries of tuberculous individuals, they have succeeded in inoculating guinea-pigs. The animals died in from three to five months with general tuberculosis, and the abundant presence of tubercle bacilli was proven.—*Centralb. f. klin. Med.*, March 6, 1886.

Kefir or Milk Wine.—Kogelmann, of Graz, has shown that the imported kefir-fungus is not necessary for the production of milk wine. The same ferment is native with us, and is abundantly present in buttermilk and also in cream which has become strongly sour. Kogelmann gives the following directions for the preparation of kefir: One part of buttermilk is added to two parts of fresh milk. Active fermentation sets in within a few hours, and in three days there is obtained a fluid which has the odor of wine, and which contains alcohol, carbonic acid, lactic acid, casein, etc., and which is identical with the imported kefir. The range of temperature within which the fermentation occurs is between 48° and 70° F., the best results being obtained at 59° F. The bottle used should be strong and should be but two-thirds filled. It must be at least thrice daily corked and vigorously shaken, then opened and laid for ten minutes as nearly horizontal as practicable, in order that the carbonic acid evolved shall escape, for fermentation is checked in the presence of an excess of gas. One part of the resultant kefir is sufficient to induce the appropriate fermentation in four parts of fresh milk.—*Centralb. f. d. ges. Therapie*, April, 1886.

Pomade for Use in Intercostal Neuralgia.—In cases of intercostal neuralgia Durand recommends the inunction, on the painful region, of a pomade constituted as follows:

Veratine,	
Chlorhydrate of morphine . .	aā 1 part.
Cold cream	50 parts.

—*Journal de Médecine de Paris*, April 4, 1886.

The Direct Electrization of the Heart.—Dr. J. Leonard Corning has devised a novel method for the practically immediate application of electricity to the heart muscle. He states that by the use of the constant galvanic current, good results are obtained in angina pectoris, while in the cardiac tremor or weakness due to excesses, as also in conditions characterized by intermittent and irregular action, the faradic current is more suitable. The details of the method are given in the following terms:

I first spray or brush the posterior wall and other portions of the pharynx with an eight per cent. solution of the hydrochlorate of cocaine. When I have satisfied myself by repeated trials that reflex nausea has been sufficiently abolished to admit of the introduction of the handle of a spoon as far as the epiglottis, I proceed to the second step in the method. This consists in the introduction of an œsophageal electrode, well insulated, except for about an inch and a half at the point. The electrode is passed down the œsophagus until the non-insulated extremity of the instrument lies behind the heart; or, in other words, when the region situated between the seventh and ninth dorsal vertebræ has been attained. In order to ascertain beforehand how far it is necessary to introduce the electrode, I am in the habit of placing the tip of the instrument over the spinous process of the eighth dorsal vertebra, and accurately measuring the distance between that point and the mouth. With a view to prevent the descent of the electrode beyond the desired points, a round disk of leather or metal is secured in front of the mouth, when the sound has been introduced as far as requisite. The electrode is then connected at its disengaged extremity with one of the conducting cords of a faradic or galvanic battery. The remaining conducting cord of the battery is then connected with a flat electrode, which is then placed over that portion of the anterior aspect of the heart not overlapped by a lung (a triangle the apex of which is at the fourth left sternal articulation, extending downward and outward to the union of the fifth rib with cartilage, and inward and downward to the sixth rib). To facilitate matters, the centre of the electrode may, instead, be simply placed over the point where the apex beat is felt. When an assistant is not available, I am in the habit of securing the external electrode in place by means of a simple band of elastic webbing which is passed around the thorax and secured in place by an ordinary buckle.—*Virginia Medical Monthly*, April, 1886.

Notes anent Pessaries.—At the meeting of the Carlisle Medical Society on February 11, 1886, Dr. Maclaren read a series of notes, entitled as above, and here condensed.

1. Always teach the patient to remove and introduce her pessary, and reject all pessaries which do not allow of this. I am sure that every useful purpose can be served by an instrument which may be taken out each night and replaced in the morning.

2. Always have the pessary made of a material impermeable to moisture. Soft, pure rubber or vulcanite are the best. Leaving in diluted Condy's fluid over night will make such perfectly clean and odorless. A pessary which is at all absorptive becomes very foul and offensive.

3. Get your patients to soap al soft rubber pessaries. Oil spoils the rubber, making it soft and porous.

4. Be sure that a pessary is needed.—*Edinburgh Medical Journal*, April, 1886.

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SATURDAY, MAY 1, 1886.

THE DEATH OF DESDEMONA.

THE publication of Othello in the Variorum edition of Shakespeare has aroused anew the interest of the medical profession in the death of Desdemona, the more especially as the volume is enriched by the observations of several of our most eminent physicians and surgeons on the mechanism of her taking off. It happens thus that we are again called on to wonder at the universality of Shakespeare's knowledge, at his fidelity to Nature in all her moods, and at that subtile instinct which surpassed imagination, and solved problems without the aid of "the logic of the schools," or the laborious method of induction from recorded facts.

But Shakespeare, as well as Homer, sometimes nodded. He who utters such a heterodox opinion, must be prepared, as was our gifted but unfortunate countrywoman—Miss Bacon—to brave the anathema pronounced against all those who purpose to disturb the poet's bones. Miss Bacon, indeed, almost alone was rash enough to deny to Shakespeare any but the most trivial share in the production of those masterpieces which have not ceased to astonish mankind. If we can admit her conjecture that Lord Bacon was the real author of the great works bearing Shakespeare's name, we are no longer surprised that his legal attainments were so remarkable that a Lord High Chancellor (Lord Campbell) made them the subject of an imposing volume, or that his medical knowledge should exercise the pen of one of England's greatest alienists,—Dr. Bucknill.

Bacon himself, a valetudinarian, occupied much time with hygienical and therapeutical questions, and in his work "On the Advancement of Learning" gave much consideration to the "knowledges" of "Medicine or Art of Cure." "I have been ever puddering in physic all my life," he said in one of his letters to Sir Humphrey May.

Miss Bacon has marshalled such a mass of facts, and has reasoned on them so acutely that no one, who has the patience necessary to wade through her work, can fail to be impressed with the weight of the testimony on her side of the question, if not wholly convinced of the truth of her position. If the "Old Player," as Miss Bacon rather disdainfully called him, who was an acute and successful man of business, bargained with Bacon—always impecunious, and often in actual distress for want of money—we need no longer be surprised at the universality of the knowledge exhibited in the plays.

Of all of the medical situations conceived by Shakespeare, that of the death of Desdemona seems to us the least happy in its scientific aspects. The physiological and pathological requirements are subordinated to the exigencies of dramatic effect. Notwithstanding the important medical and surgical questions involved, it is a singular fact that neither Bucknill (*The Medical Knowledge of Shakespeare*, London, 1860), nor Stearns, of Hartford (*Shakespeare's Medical Knowledge*, New York, 1865), makes any allusion to the death of Desdemona. A symposium of medical and surgical experts enliven, with their interesting and instructive opinions, the pages of the Variorum Shakespeare devoted to this part of the tragedy of Othello. We can the better understand their views, by reproducing here so much of the tragedy as bears on the mode of Desdemona's death. She ends some pathetic pleading for delay, with

Des. But while I say one prayer.
Oth. It is too late. (*Smothers her.*)

. . . . . .

Oth. What noise is this? Not dead yet? Not yet quite dead?
I that am cruel, am yet merciful.
I would not have thee linger in thy pain?
So, so.

Aemilia then enters, and narrates the death of Rodorigo, which occupies but a few minutes, when—

Des. O falsely, falsely murdered.

. . . . . .

Aemil. ——Oh, Lady, speak again, sweet *Desdemona*, oh, sweet mistress, speak.
Des. A guiltless death I die.
Aemil. Oh, who hath done this deed?
Des. Nobody; I myself, farewell.
Commend me to my kind Lord; oh, farewell.

There is an obvious inconsistency in the mental condition of Desdemona and the alleged injury, in this prompt revival and discourse in a purposive way, and then the end without further injury. We believe that in this, Shakespeare does not conform to nature, and that, indeed, he has in view the dramatic effect quite irrespective of pathological considera-

tions. The eminent physicians and surgeons whose opinions are given by the editor of the Variorum edition, are not agreed as to the mode of death, or as to the physiological and psychological insight displayed in the narrative. When first suffocated, Desdemona, a sensitive, sympathetic, and impressionable subject, we may suppose, merely swooned, overcome with fear and grief and loss of breath. If she had rallied from this state, and been able to discourse as represented in the play, her condition had harmonized with the facts of medical science; but giving her coherent thought and speech after Othello had, to save needless pain, extinguished, as he supposes, the last spark of life, is not consistent with her sudden and eternal silence, without further injury, although such a conclusion is necessary to the dramatic action. We therefore fully agree with Dr. Da Costa that the details of "Desdemona's death cannot be reconciled to strict scientific facts"—a conclusion in which he is supported by Drs. Mitchell and Agnew.

Opinions as to the nature of the injury inflicted by Othello with the exclamation "So, so," are widely divergent. In the "Talisman," where Scott makes the Grand Master of the Templars stab the Marquis of Montserrat, it is with the words "*Accipe hoc!*" that the dagger strikes home.

Dr. Mitchell holds that with "so! so!" Othello should "throttle Desdemona fiercely, again and again." It appears to be the stage tradition that Othello, to make sure, uses the dagger, but if so, he must seem to be governed by a sudden impulse, for in his soliloquy, before killing Desdemona, he says:

> Yet I'll not shed her blood,
> Nor scar that whiter skin of hers than snow,
> And smooth as monumental alabaster.

And afterwards to her uncle, on his entrance, he exclaims:

> There lies your niece,
> Whose breath these hands have newly stopp'd.

Desdemona's appearance, as described by Othello, lends support to the theory of suffocation, and yet it may be explained by death from a dagger wound:

> Now: how dost thou look now? Oh, ill-starr'd wench,
> Pale as thy smock.

As she was, apparently, suffocated in her night garments, her "smock" was, no doubt, white. Her face must, then, have been pallid. Although after strangulation with a cord which compresses the superficial veins, the face may be turgid, dark, and swollen, mere suffocation causes pallor, for the return of blood from the head and face is not prevented. The most eminent authorities—for example: Caspar (*Practisches Handbuch der gerichtlichen Medicin*, 5th ed., by Liman, vol. ii. p. 611), and Woodman and Tidy (*Forensic Medicine and Toxicology*, Am. ed., p. 852)—are agreed on this point; and hence that there may be nothing in the appearance of the body to indicate that death is due to any other than natural causes.

It is no doubt true, as remarked by Dr. Da Costa, in the symposium of experts, that Desdemona's condition during her time of dying is not incompatible with death by stabbing. After receiving the fatal blow with "so! so!" she may have rallied from the first shock sufficiently to utter the words put into her mouth, and then have sunk by internal hemorrhage. If, however, we accept Othello's words as conclusive of Shakespeare's intention, death by suffocation is the mode of ending proposed by the dramatist.

Dr. Hunt, one of the surgical experts of the symposium, finds an easy explanation of all the difficulties, by his theory of fracture of the cricoid cartilage. Thus he preserves Shakespeare's consistency, and offers additional evidence of the universality of his attainments. The element of time seems to us to present an insuperable objection to the acceptance of this theory. If the injury to the larynx could cause death so quickly—in a few minutes—could Desdemona have uttered thoughts indicating complicated reflections? If not so seriously injured, although a broken cricoid were its chief result, would not death have come more slowly with effusion from inflammation and œdema of the glottis?

On the whole, we must conclude that Shakespeare was more concerned to obtain a dramatic effect than to be true to the scientific aspects of death by suffocation.

The tragedy of Othello suggests many questions of extreme psychological interest, which, strangely enough, have escaped the attention of those who have written of Shakespeare's medical knowledge. Desdemona is represented as one of a type by no means uncommon in our day. She is one of the nervous—the hysterical group—impressionable, and having physical attributes in harmony with her mental and moral organization. Shakespeare has availed himself with wonderful skill of these psychical and physical qualities to develop the tragedy in its most exquisitely emotional phases. From the first moment when Desdemona stands transfixed with the grim narrative of the strange incidents of Othello's career, until her last prayer for life, we are made to witness the influence of a vivid, passionate, and unfamiliar personality, on a susceptible, emotional, and intensely feminine organization. It would, however, carry us much beyond our proper limits to explore this inviting field, and, hence, we must content us with urging on our readers a new study of the curious psychical problem worked out in the magic pages of Othello.

THE METHOD OF ANTYLLUS FOR THE TREATMENT OF ANEURISM.

Before the invention of the operation of ligation for the treatment of aneurism, the only operation in use was that attributed to Antyllus, which consists in cutting down upon the sac, ligating the artery on both sides of it, and then splitting open the sac or excising it. Amputation, which was the only alternative, can hardly be considered anything but a mode of avoiding any direct treatment. But with the invention of the operation of ligation the ruder method of the older surgeons was almost wholly superseded, and the method of Antyllus is now almost obsolete. From time to time, however, exceptional cases have arisen in which it seemed impossible, or clearly unwise, to practise the modern method, and in such cases the method of Antyllus has been employed. This was notably the case in a number of patients operated upon by Syme; and other surgeons have found it preferable to amputation in cases of traumatic or diffuse aneurisms. In 1884, Murgulovic, in an Inaugural Dissertation, reported a successful operation of this sort for the cure of a traumatic aneurism of the femoral artery. A year ago Largeau, in the *Archives Gén. de Médecine*, March, 1885, strongly urged the general employment of the method of Antyllus for all aneurisms of the popliteal artery. Most recently Sonnenburg, of Berlin, has reported a successful operation of this sort, and made some interesting comments upon the method in the *Berliner klinische Wochenschrift* for March 1, 1886. His patient was a sailor, forty-nine years old, with pronounced selerosis of the arteries, who applied for relief from a spontaneous aneurism of the popliteal artery, which he had observed for only about two months. The size of the tumor was about that of an apple. He was unable to bear digital compression, and Sonnenburg feared gangrene in case he ligated the femoral artery. In choosing between the method of Antyllus and amputation, he decided upon the former. The operation was conducted according to the bloodless method of Esmarch. It was extremely difficult to separate the sac from the surrounding parts, especially the veins. The vessel was ligated above and below the aneurism, and was divided at two points, about six inches apart. The cavity was disinfected with iodoform and lightly packed, a drainage tube was inserted, and the wound was sewed up, after which the leg was enveloped in cotton and slightly elevated. The operation lasted about two hours. The collateral circulation was soon established, but localized gangrene occurred in the sole of the foot, along the lines of distribution of the terminal branches of the posterior tibial artery. The patient was dismissed from the hospital in four months and a half, and at the end of six months had full use of his leg, with free motion at the knee-joint and no apparent defect except some tenderness at the seat of the gangrene.

The operator, in his paper, urges the importance of preserving the integrity of the popliteal vein in an operation of this sort, and argues that the conditions are more favorable for the establishment of the collateral circulation after occlusion of the popliteal artery, than after occlusion of the femoral below the origin of the profunda. This depends upon the fact that the *suprema genu* plays an important part in the establishment of the collateral circulation when the femoral is left open, but is excluded from participation in it when this vessel is ligated. This advantage is lost, however, if the ligature is placed very high up on the popliteal, or encroaches upon what is properly the femoral artery.

It is often objected to the method of Antyllus that secondary hemorrhage is very common after it. But, as Sonnenburg observes, this objection is mainly founded upon experiences which antedate the advances and refinements of modern surgery. There can be no doubt that a more frequent employment of this method at the present day would lead to a much better exhibit of results than it has heretofore shown. Something may be said, too, as to the dangers attendant upon any other method of treatment of aneurisms, especially of the popliteal artery. In this city, digital compression may be said to be the method of choice; and the results obtained by Philadelphia surgeons certainly warrant this preference. The operation of ligation of the femoral artery is usually reserved for cases which have resisted careful and thorough compression with the fingers of a relay of assistants. But failures have occurred everywhere after the employment of either, or of both methods, and a study of the recent literature of the subject shows that secondary hemorrhage, gangrene, and death, are not very uncommon sequences of these methods. It is not easy to determine just when it would be proper to prefer the ancient method of Antyllus to ligation or compression, although it is, probably, not too much to say that it ought almost always to be preferred to amputation. With the advantages of anæsthesia, the bloodless bandage, and the use of aseptic methods, it might prove to be wise to try the applicability of this mode of operating to other than the most difficult sorts of aneurisms. And if a number of simple aneurisms of the popliteal artery were to be treated by excision, instead of by distal ligation, this plan might come into greater favor than it can so long as it is regarded as a last resort.

THE WEIR MITCHELL TREATMENT.

It is notorious that from West to East knowledge travels slowly; yet it is not a little surprising that nigh a decade should have elapsed from the announce-

ment by DR. MITCHELL of his plan of treating cases of nervous prostration, to its discussion and adoption in Germany, the land of "cures." In England, DR. PLAYFAIR has used it with striking success. His little monograph has been widely read, and has recently been translated into German. One of the last lectures in Volkmann's series also deals with the subject, so that our German brethren have now before them the full details of the plan.

In the *Deutsche medicinische Wochenschrift*, No. 14, 1886, there is the report of a lecture on the "Weir Mitchell treatment," by PROFESSOR LEYDEN, of Berlin, who enters into the question at length, and gives an analysis of the well-known volume *Fat and Blood*, which he characterizes as written in the true Hippocratic spirit. He confirms the experience of Playfair and others, and has had extraordinary results in suitable cases. As the essence of the method, he regards the treatment of the patient in his entirety, not the disease alone. Undoubtedly, the secret of the remarkable success which has attended this plan in the hands of its author is to be sought in the careful consideration which is given to every circumstance in the life and condition of the individual. As Leyden remarks, "the physician must know man and his surroundings; he must be able to judge of the conditions under which the patient lives; he must seek out the causes in which the disease has developed, and gather from them indications of the means to be adopted for its removal."

SYPHILITIC REINFECTION.

THE question of the possibility of two attacks of syphilis occurring in the same individual has been vigorously discussed for some four centuries. Ricord has affirmed that a person once attacked with syphilis is never entirely freed from the disease. Bärensprung is of a similar opinion, maintaining that in this disease there is acquired an immunity from reinfection analogous to that observed in the exanthematous diseases. Sigmund absolutely denies the possibility of reinfection, while Zeissl claims to have several times observed the reacquisition of the disease a few years after the first attack.

At the January session of the Society of Physicians of Vienna, NEUMANN presented a patient who was a marked example of reinfection. In November, 1883, she had come to his clinic with large condylomata and a general swelling of the lymphatic glands. After appropriate treatment she was discharged, cured. Early in 1886 she again arrived for treatment, with a syphilitic lesion of a labium majus, an indurated chancre, and several days thereafter appeared fever and a macular syphilitic eruption. Apart from the comparative rarity of authentic cases of syphilitic reinfection, their chief interest lies in the fact that they afford conclusive proof that the syphilitic taint may be completely and absolutely eradicated.

SPECIAL ARTICLE.

PROPHYLAXIS OF HYDROPHOBIA.

IN our issue of last week, page 450, we reproduced M. Pasteur's communication to the Académie des Sciences on the "Prevention of Hydrophobia by Inoculation." Since the date of that communication three of the Russians suffering from wolf-bite, who were then under treatment, have died, and M. Pasteur has felt called upon to make a supplemental statement at the session of the Académie on the 12th of April, a report of which appears in the *Gazette Hebdomadaire* of April 16th.

He said that there had been treated, under his supervision, 726 individuals bitten by rabid animals. Up to the first of March last, the number of patients so treated was 350.

Of these 726 persons, 688 had been bitten by rabid dogs and 38 by rabid wolves. The two groups should be kept separate, in order to judge fairly of the method. With the exception of the little girl Pelletier, every one of the 688 persons suffering from the bites of rabid dogs was in good condition, despite the fact that more than half of those cases had passed the dangerous period.

Of the 38 Russians who had been treated, or who are still under treatment, 3 have died of rabies; but it is impossible to predict what may happen later. In Russia it is proverbial that any one bitten by a mad wolf is irrevocably lost, yet of the 19 Russians from Smolensk, whose treatment is terminated, 16 have returned to their homes apparently out of danger.

The observed facts have demonstrated:

1. That the period of incubation of human rabies after inoculation by the bite of a rabid wolf is much shorter than after the bite of a mad dog.

2. That the mortality resulting from the bites of rabid wolves is greater than in the case of bites of dogs similarly affected. This is apparently due to the location and great depth and extent of the wolf-bite. Inoculations made in dogs, rabbits, and guinea-pigs, with the spinal cord of the Russian who first succumbed, showed that the virus in this case was apparently no more virulent than that of rabid dogs.

In all instances, however, and especially in the case of wolf-bite, it is desirable that the patient should submit himself to the preventive treatment at the earliest possible moment. Thus, the 19 Russians from Smolensk did not arrive for treatment till the fourteenth or fifteenth day after that on which they were bitten, whereas, according to M. Pasteur, the treatment should have begun a week earlier.

M. Pasteur stated, further, that he is at present prosecuting experiments with a view so to modify his process as to render it, if possible, more applicable to cases of bites of rabid wolves.

SOCIETY PROCEEDINGS.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, April 12, 1886.

The President, James T. Whittaker, M.D., in the Chair

Dr. W. H. Wenning read a paper on

INDICATIONS AND CONTRAINDICATIONS FOR THE IMMEDIATE SUTURE IN OBSTETRIC LACERATIONS OF THE PERINEUM.

(See page 483.)

Dr. C. D. Palmer, in opening the discussion, said that he had listened to the paper with interest and profit. The subject presented was an old one, yet in view of some recent expressions of opinion, it was perfectly proper that it should be discussed again. As remarked by the essayist, the time was, and not a great many years since, when all these injuries were left to nature's efforts. But the recognition and appreciation of the ill results from such a course of conduct created a revulsion which went on and on, until universally, and almost unanimously, it was considered the duty of the accoucheur to make use of the primary suture.

If one will for a moment contrast the disadvantages of a non-use of the primary suture with the benefits to be derived, or ill results prevented by its use, it would seem that there would be no hesitation in always employing it. First, then, what are the disadvantages arising from non-interference? These are immediate and remote. Among the first are an open, raw sore, which rarely heals. It is true a few bad rents do spontaneously heal by primary intention. A vast majority will not, or only imperfectly, and this is true, notwithstanding that nature is aided by posture and cleanliness. Nature very often does something toward an improvement, but the work done is incomplete. Now, this open surface, before granulation, is one exceedingly liable to take up septic matter from without and from the lochia, hence increased chances for septicæmia, which possibly may be fatal.

Again, the torn perineum and vagina, healing imperfectly only by granulation, often a septic wound, leads to vaginitis and delays vaginal involution. The open wound is a source of pain and irritation.

The remote effects are: A subinvoluted vagina, a gaping vulvar orifice, secondary vaginitis, vaginal prolapse, cystocele, rectocele, and in some cases, according to the time and degree of the injury, uterine dislocation—finally, derangement of the general health. All of these conditions may, and do often follow one after another, as a direct result of perineal laceration not deeper than to the sphincter ani. When the sphincter ani is torn we have, in addition to the above, special rectal symptoms. All of the local and general symptoms follow in the train of those local difficulties; first, because of a slowly healing, open, septic wound; and, second, because the position, relation, and structure of the parts have been altered and distorted. They are all preventable by a simple procedure, the execution of which, properly done, secures all the benefits of a restored perineum. The procedure is easily and quickly executed, requires no more than ordinary skill, demands no anæsthetic, and although not painless, is no as painful as it would be in the non-parturient woman without anæsthesia. I is entirely devoid of danger under almost every possible condition; in fact, does away with an active factor of danger. Finally, it is, under ordinary condition of the parts, almost uniformly successful, and under extraordinary conditions of the region in question, as marked swelling, œdema, lividity, and raggedness, it is unsuccessful in a comparatively small percentage of cases.

The danger which is first, and the serious and long-continued discomfort which comes last, from a non-use of the suture, are certainly in marked contrast with the safety at first and comfort obtained at last, secured by its use. There is no more reason why a lacerated, gaping wound of the perineum should be left to nature alone than any similar wound of any part of the body. The greater the wound the greater the need for the suture.

The argument is so strong, yes, irresistible, for the use of the primary suture, that the duty of the accoucheur now is imperative. If union fails to take place nothing is lost, as compared with the result of a non-interference. Probably something is gained, for the parts are put more at rest, more nearly approximated, and hence more union results.

Therefore, operate in all cases and in all conditions. There is no local condition which is a contraindication to the use of the primary suture in a laceration which amounts to anything.

As to the method of operation, Dr. Palmer said he had used all kinds of suture in this primary operation, as silver wire, catgut, silkworm, silk, and silk-floss, but he now prefers silver, pure, soft, and not too large in size. This suture is less septic than any, and the inconvenience of the outer ends can be obviated greatly by a soft rubber tube covering, both it and the wire being cut rather short. Success in the operation depends, above all things, upon the method of adjusting the suture so that perfect and thorough coaptation of the rent surfaces is secured. He did not believe in the use of serre-fines, except for the external ruptures. Placed externally they could not produce exact coaptation of the upper, inner, vaginal portion of the rent. A great many rents are as much, or more, vaginal than integumentary. Some are purely vaginal. A method of suture adjustment which was calculated to secure good results in the primary operation had been illustrated by Goodell. It had objections, however, for the secondary operation. It consisted in entering each suture from without through the integument of the left side and postero-lateral septum, making exit on the mucous membrane of the vagina, just above the upper edge of the torn mucous membrane. The circuit of this suture was completed by entering the mucous membrane at a point on the opposite side, corresponding to the exit of the first half, and coming out on the integument of the right. The whole rent is thus encircled; and not many sutures are needed, but enough ought to be used to bring all torn edges together. Failure to unite the edges of the vaginal rent would leave openings for the entrance of septic material, produce pocketing along the posterior wall, and weaken the pyramidal body. As some rents are largely or purely vaginal, the sutures may then, with better satisfaction, be placed transversely within the vagina, cut short, and the edges turned down. The skilful adjust-

ment of these requires the use of a Sims's speculum to hold up the anterior vaginal wall, while the patient is supine.

The speaker advised, in conclusion, that the primary suture should be used in all cases—not simply where the parts are in ordinary condition, but where they are very seriously torn and look bad. If failure should follow, little can be lost, but something is always gained.

DR. THADDEUS A. REAMY said that the only point in which he could at all differ from the essayist was in reference to the omission of the sutures in the slighter degrees of laceration. The author of the paper, as he understood him, had recommended that where the laceration is but slight, yet involving mucous and muscular tissue, extending but little beyond the fourchette, so-called, no operation need be employed, except for the purpose of keeping out sepsis, since a large number of such cases would heal primarily if left alone. To this the speaker could not consent. He knew of but one condition that would justify any one in not making the primary operation in any case where the injury extended beyond the fourchette, and that would be a condition of the patient which rendered an operation unsafe.

Goodell, in a paper published in the first volume of the *American Gynecological Transactions*, states that he thinks it may be a matter of doubt whether, when the septum is divided, it is best to make the primary operation, but strongly advocates it in other degrees. I know of no higher authority in this or in any other country than William Goodell. It is probable, however, I think, that by this time he has changed his position on this question, and now includes the severe degrees; or, if he has not, it is evidence to my mind that a great authority can be wrong.

Prof. Frank H. Hamilton, whose distinction as a surgeon entitles his statements to the highest consideration, in an able paper published in the *Medical Record* for June 20, 1885, condemns the immediate operation by any method in any case. Quoting from memory, I may not give the order of his argument, but will state the important points.

Objection 1st. Union by first intention cannot be secured, only union by granulation, which can often be obtained by position alone.

2. Immediate operation, in many cases, must be postponed for several hours because of retained placenta.

3. But few accoucheurs can at once determine the extent of laceration, and therefore many cases would needlessly be subjected to operation.

4. The patient is in no condition to bear an operation of importance, and which, under such circumstances, proves dangerous.

5. The operation is difficult, and the proper surgical skill may not be attainable in time to make the operation "immediate."

In a subsequent communication the same author quotes from the Vienna Hospital to prove that the dread of sepsis, if operation be neglected, which many accoucheurs entertain, is unwarranted.

In replying briefly to these objections, whilst agreeing with most modern authors, I shall speak from personal clinical observations obtained in private and hospital practice, including a large consultation experience.

1. I maintain that union by first intention, when the immediate operation is properly done, is the rule; failure the rare exception, even including cases involving the anal sphincter.

2. I would in no case leave a placenta undelivered for a sufficient time to forbid an immediate operation. In a case of adherent placenta the circumstances must be quite exceptional, which would delay delivery more than an hour or two. In retained placenta from other causes the time would not be increased, in proper hands. An operation for perineal repair should be considered "immediate" if done at the close of the third stage of labor. One or two hours' delay after the rent occurs will make no material difference in results. It is, however, preferable, and is my custom, to operate before the child is washed, before the patient has fully recovered from the anæsthetic (chloroform) under which it is my practice to deliver all primiparæ.

3. I should have but little respect for an accoucheur who could not, upon proper examination, determine the extent of laceration. There is no excuse for such ignorance.

4. The operation is in most cases neither painful, tedious, taxing to the patient's strength, nor dangerous. If the woman has suffered severe hemorrhage, or is otherwise in a state of exhaustion, of course the operation should be delayed until she is restored; but instances demanding much delay are quite exceptional, and these do not affect the general question at issue.

5. The immediate operation is not difficult, except in cases where the damage has been very extensive, involving sphincters and septum, or when the laceration is in unusual directions. It is so simple that no man who is not thoroughly competent to make it, without consultation, should assume the office of accoucheur. Of course, this strong language is not intended to apply to the management of the exceptionally severe cases already noted.

On the other hand, it is not my intention to limit it to the management of cases of the first and second degrees. Let no one who has had experience in the secondary operation and not in the primary (immediate), attempt to judge of this question from his experience. The remote operation, even in simple cases, requires for its perfect performance special skill which can only be acquired by experience. Not so, however, the immediate operation, where the parts are so relaxed that they can be brought into the proper relation without the least difficulty. No accoucheur should take charge of a primipara in labor without having in his pockets, or obstetric bag, the needle and needle-holder and silk necessary for the work.

The proposition that a woman who has in labor suffered more or less perineal laceration is not thereby in peril from sepsis, is so contrary to our present knowledge of the methods by which puerperal septicæmia is established, as to be absurd. Equally unreasonable is the position that the immediate repair of such an injury does not markedly lessen this danger.

So important do I consider this view of the question, that I should feel justified in the immediate operation if there were no other objects than prophylaxis from sepsis.

It is well known that the vaginal mucous membrane possesses slight absorbent properties, but when the

vaginal walls or perineum are lacerated, the rich plexuses of lymphatics found everywhere in the female pelvic organs enlarged at the close of gestation, and so especially abundant in the region of injury, are ready recipients for septic matter, which is speedily carried into the general circulation.

The damage from this source is not always fully measured when germs of special power mark the fatal progress of epidemic influence. A patient need not die to show the injuries of sepsis. Metritis, perimetritis, cellulitis, subinvolution, subacute or chronic invalidism in various forms may indicate the damage, all of which might possibly have been prevented by closing the exposed field.

Now as to the general question. No one well informed as to the immediate and remote evils of imperfect repair, whether spontaneous without treatment, or secured by posture alone, or by operation or otherwise, resulting to the subjects of even slight rupture, and generally increased in proportion to the extent of rupture, in graver cases, can for a moment question the wisdom or the humanity of adopting such measures as will best avert these evils.

Experience as well as science testifies that the most reliable means to such an end are found in the immediate operation, properly done.

The truth of the above statements is in no way impaired by the concession that spontaneous cure, and cure by posture, and by serre-fines, etc., will in a very limited number of cases be secured. The small number of such results, and the uncertainty in any individual case, must at once answer and condemn any such idle folding of hands and waiting for something to turn up.

We are gravely told, in this connection, that some women who have laceration of the external anal sphincter have nevertheless perfect control of feces except when suffering from diarrhœa; and that other women who have unrepaired laceration of both sphincters, with, of course, total destruction of the so-called perineal body, do not suffer prolapsus of either uterus or bladder.

No one will deny the truth of these statements; but does not the woman's condition, in each case, show that she was not cured, and was therefore not successfully treated by chance or otherwise? And would any one present advocate a division of the anal sphincter as a measure of comfort, because a woman has been found with such an accident who could control her feces? Or would any one certify that a woman is in the best condition to participate in the physical pleasures of the marital relation because adhesions and other pathological conditions, following an unrepaired lacerated perineum and recto-vaginal fistula, have prevented uterine prolapsus?

Methods of Operating. Suture.—I have tried silver and iron wire, catgut, silkworm-gut, and silk. To the latter I have for some years given decided preference, except in cases hereafter to be mentioned. It is easier of introduction, easier and more accurately tied, and presents no jagged ends. If rendered aseptic no suppuration will follow its course within the time it should remain—four to six days. In most cases union has occurred at the end of the fourth day; when it has occurred the sutures of whatever kind should be removed, since after union the sutures can only tend to lead the lochial fluids along their tract. It is a most fortunate coincidence, and is a strong argument in favor of the immediate closure of these wounds, that the unhealthy and irritative properties which often characterize the lochial discharge, after the fourth day, are not present until after union has occurred. Catgut sutures cannot be depended upon. The silkworm-gut is so stiff, unless long soaked, as to render it difficult to tie, and equally difficult to regulate the tension.

Instruments.—A short, strong needle-holder, which may be carried in a pocket-case, a surgeon's needle, straight for two-thirds of its length, curved not too sharply at the point end, flat whole distance of curve, and very sharp at the point. The needle should be at least three inches long. An ordinary pocket-case scissors will answer for trimming ragged edges, a procedure seldom needed.

Position of Patient.—Buttocks at verge of the bed, lithotomy position, good light, an oilcloth must be placed so as to protect the bed. Perfect uterine contraction and expulsion of clots must be secured by friction, and maintained, if necessary, by ergot. The vagina must be thoroughly washed out with warm carbolized water. A small sponge must be placed at the mouth of the uterus and the washing of the vegina continued after the sponge is placed, until the parts are clean. After the sutures are all in, should any blood have escaped into the rent, the irrigation must again be done before the sutures are tied.

Method of Introducing Sutures.—Should the laceration only reach the second degree, but one suture is needed. This was pointed out in an article published in the January number, vol. xvii., of the *American Journal of Obstetrics*, by the late Dr. Alloway, of Montreal. I have in a number of instances verified the value of the so-called one-suture method. The left index finger being introduced into the rectum as a guide, the needle is inserted through the skin a little more than a fourth of an inch from the torn edge, just below the level of the fourchette, and carried across the rent, emerging at a corresponding point on the opposite side. Care must be taken that the needle does not enter the rectum, nor should it at any point puncture the mucous membrane of the vagina. In crossing the rent it should emerge and enter the rent walls, as nearly as possible, midway between the rectum and mucous membrane. The sutures should be tightened only sufficiently to close the surfaces. The temptation to make them too tight should be resisted. When the sphincter is partially divided, two sutures should be used, and they should be inserted and tightened after precisely the same rule as above. Should the sphincter be wholly divided, three sutures must be employed after the same method.

When the septum is extensively divided the upper portion should be closed as follows: Take a very fine short needle, almost a semicircle in shape, arm it with a very fine silk thread, and secure the needle in the small needle-forceps. Cleanse and dry the parts thoroughly. Bring the parts to view with the hips at the verge of the bed. Introduce the index finger of your left hand into the rectum, as before, and carry this little needle down into the tissues until you come to the rectum, but do not enter it; pass it under the rent and out on the other side. This procedure is to be repeated until a sufficient number of sutures has been introduced and the parts brought into perfect apposition, so that no

discharge can get between the edges of the wound. When you get to the perineum proper, operate on it in just the same manner as you would on a laceration of a less degree where the septum had not been divided.

Catgut suture for this operation upon the septum will answer fairly well, but I much prefer silk. The method of tying the sutures in the rectum in these cases I do not approve, because, first, it is difficult of performance; second, the sutures generally irritate the rectum; third, removal of sutures is difficult.

When the septum is not only divided, but contused at different points, with loss of tissue, as I have seen in a few instances, I use silver wire No. 28, carry them deeply, all from the outside, and as many as may be needed, and allow the ends to remain sufficiently long to be carried two inches beyond the vulvar opening. This prevents the jagging of cut ends, and also facilitates removal of the sutures. They must here remain from eight to twelve days. Union is, of course, generally by granulation, but excellent results may often be obtained even under such unpromising conditions.

In all cases, mild or simple, the bowels should be moved either by compound licorice powder or enema, before the sutures are removed.

Dr. Reamy then reviewed the anatomy of the perineum according to the investigations of Hart, as confirmed by Ranney, showing that the muscles of the perineum are not torn in rupture of that body, but are merely separated. On this account, it is not necessary to draw the sutures very tight, but only sufficiently so to bring the parts into apposition. After operation treat the patient with the same care as is observed by those who do not operate but depend upon posture. If you permit the patient to assume all postures, and allow the catheter to be introduced in a bungling sort of way, you will not get union. If there are ragged edges to the wound, it is better to cut them off, but if the tear is only zigzag, it matters not.

He then gave a few general suggestions and hints to young physicians as to the best methods of avoiding the censure which sometimes rests upon the accoucheur, of want of skill, as a cause of the accident. He believed that skilled attention would lessen the number of lacerations greatly, but the accident is unavoidable in certain cases, no matter in whose hands, and those who deny this either wilfully misrepresent the facts as to their practice, or are too negligent to examine their cases.

He thought that most cases of extensive laceration involving the rectovaginal septum, are due to the unskilful and violent use of the forceps. He had never been so unfortunate as to have the accident in this degree to occur in his own practice.

DR. J. H. TATE remarked that he had a method for treating these cases without even the use of a little stitch, and one in which he avoided the necessity of preparing the minds of the patient and her friends for a dreaded operation. His experience at the Cincinnati Hospital had afforded him abundant opportunity for testing the advantages of his method, as well as the frequency and extent of perineal lacerations. The accident is so frequent in primiparæ as to constitute fifty per cent. of all cases. The cases from which he obtained these statistics were in a public institution, where they were submitted to ocular and not simply digital examination. There were at one time, in a period of four months, eighteen lacerations in his ward. Of these, four extended down to the sphincter ani. They were operated upon immediately. From the results obtained the speaker arrived at the conclusion, which he has since confirmed, that the primary operation should be made in all cases, except where the patient is in an unfit condition from loss of blood or other cause. The method upon which the speaker placed so much confidence in all cases where the sphincter is not torn, although not original to himself, was the use of strong serre-fines. To apply them, it is only necessary to turn the patient on her side, with the knees drawn up. From one to three or four serre-fines are usually sufficient. The speaker believed the results obtained from this method equal to those from any other method in use. Fourteen cases were cited, in twelve of which the operation was successful in the perfect restoration of the perineum. One of the failures was in a case in which the head had rested so long on the perineum as to produce a large slough on either side. Where the laceration extends up into the bowel, or even through the sphincter, stitches are necessary, although the serre-fines are of great value in coaptating the edges of the wound. The chief advantages claimed for the method were its simplicity and convenience, as well as the satisfactory results which follow its use.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

Eighty-eighth Annual Meeting, held at Baltimore, April 27, 28, 29, and 30, 1886.

(Specially reported for THE MEDICAL NEWS.)

TUESDAY, APRIL 27.—FIRST DAY.

THE eighty-eighth annual meeting of the Medical and Chirurgical Faculty of Maryland was held in the hall of the Faculty (Athenæum Building), on Tuesday, April 27, at 12 M. THE PRESIDENT, DR. JOHN R. QUINAN, of Baltimore, was in the Chair.

After preliminary business, the Faculty listened to

THE PRESIDENT'S ADDRESS,

the subject of which was: *The Chartered Right of the Medical and Chirurgical Faculty of Maryland to Exact Licenses to Practise in this State.*

He gave in brief the results of his examination of the legal records of this State, bearing on our right to regulate the practice of medicine within Maryland. If we possess, he said, the necessary legal power for such regulation, let us enforce it; if we do not, let us secure it. In 1795 the medical men of Maryland saw the necessity of protecting themselves and the people from quackery, and they earnestly called for the union of all the best professional elements of the State for this purpose. This Faculty was thereupon incorporated in 1798 under its existing charter. The preamble of this charter set forth the objects of its formation to be "The promotion and dissemination of medical and chirurgical knowledge throughout the State," and the "prevention of its citizens from risking their lives in the hands of ignorant practitioners or pretenders to the healing art."

By its fourth section the Faculty, through its Medical Board of Examiners, is given the power to grant licenses to such medical and chirurgical gentlemen as they either upon full examination, or upon the production of diplomas from some respectable College, may judge adequate to commence the practice of the medical and chirurgical art;" and it is further provided, that without such license no one shall practise or receive payment for his services under a penalty of fifty dollars for such offence, recoverable by presentment and indictment.

The charter thus granted was not an ordinary statute, repealable at the pleasure of the Legislature, but a solemn compact entered into with certain private individuals and their successors, by which the State guaranteed them certain corporate rights, powers, privileges, and franchises forever, unless forfeited by abuse or non-user. Did they do either? Has any court ever convicted them of abusing these powers? Have they ever voluntarily abandoned them?

The result of my examination of the statutes of Maryland, and the judicial decisions thereon, from 1798, is as follows:

The corporate members of the Faculty met at Annapolis, June 3, 1799, and organized and proceeded to grant licenses. By A. A. 1801, Ch. 35, they secured a supplementary act to enforce under penalties the same powers. In 1816, by Ch. 141, the censors were allowed to issue licenses to graduates who, by diplomas or examination, gave satisfactory proof of fitness. By A. A. 1818, Ch. 130, the provisions were extended to non-residents coming to practise in Maryland. By A. A. 1821, Ch. 217, persons not licensed were prohibited from suing or receiving compensation for professional services.

In 1838, by Ch. 28, the Legislature passed "An Act to authorize Thompsonians or Botanic Physicians to charge and receive Compensation for their Services and Medicines," while the body of the Act reads, "Be it enacted that after the passage of this Act, it may and shall be lawful for each and every person, being a citizen of this State, to charge and receive compensation for their services and medicines in the same manner as physicians are now permitted to do." This absurd Act violated the chartered rights of this Faculty, but the Thompsonians soon fell into disrepute, and this Act is now only remembered as a thing of the past. The Acts of 1861, Ch. 42, and 1862, Ch. 98, merely fixed the number of members necessary to call a meeting of the Faculty. With the exception, therefore, of the absurdity of 1838, no Act has been passed to impair the power of this Faculty to require licenses throughout the State.

The charters granted by the Legislature to the Medical College of Maryland and of the University, being subsequent to ours, could not legally impair the obligations of a prior contract with this Faculty. Besides, the said College and University sprang from this Faculty. The plan of the college received the approval of our second President, Dr. Philip Thomas, at the Convention of 1802, and by its charter (A. A. 1807, Ch. 53) the relations between it and this Faculty are made very close, and no interference was intended.

In the appeal of the Regents of the University, reported in 9 Gill & Johnson's Reports, page 365, the court says: "The charter of the University has no express provision dispensing with the necessity of a license to practise from the Board of Medical Examiners (of this Faculty), nor authorizing graduates of such institution to practise without a license."

In conclusion, let me say that as our right to require licenses for all who desire to practise medicine and surgery in this State exists to-day in all its integrity, then I adjure you by your regard for our highest professional interests; by your regard for the honor, dignity, and moral elevation of your calling; by your regard for the lives and sanitary welfare of the community, boldly assert your vested right, and at once and forever clean out the Augean stable of charlatanism and quackery.

TREASURER'S REPORT.

DR. W. F. A. KEMP, Treasurer, reported the receipts for the past year as $1628.29. During the same period nine new members were added.

EXECUTIVE COMMITTEE REPORT.

DR. THOMAS S. LATIMER, Chairman, reported that, in accordance with a resolution passed by the Faculty at its last annual meeting, the hall and two rooms now occupied by the Society had been leased for a period of one year at $600, and that the Faculty has made arrangements with the Librarian of the Surgeon-General's Office, in Washington, by which our members can have the use of its books, the Faculty being responsible for all loss or damage.

LIBRARY COMMITTEE REPORT.

DR. I. E. ATKINSON, Chairman, reported that the total number of volumes upon the shelves of the library was 5000, an increase of 830 over last year, many of which volumes were donated by members of the Faculty. 62 journals are now regularly received, of which 37 are American, 10 British, 7 German, 6 French, and 2 Swedish.

PUBLICATION COMMITTEE.

DR. G. LANE TANEYHILL, Chairman, reported that the cost of printing last year's *Transactions*, with 500 copies of the Annual Address, and 300 copies of the President's Address, had been $306.71.

(To be continued.)

NEW YORK SURGICAL SOCIETY.

Stated Meeting, April 12, 1886.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

DR. MARKOE read a paper on

OESOPHAGOTOMY FOR FOREIGN BODIES LODGED IN THE TUBE.

The following cases, neither of which has been published, formed the foundation of his remarks.

Case I.—Harriet Jones, æt. three years, while playing with some iron jacks, such as children now use in place of the old-fashioned jackstones, got one of them into her mouth, and swallowed it. The alarm was immediately given by her sister who was playing with her, and when the mother ran to her, she seemed to be choking. The mother put her finger back into the fauces and distinctly felt the foreign body, but only suc-

ceeded in pushing it farther down and out of her reach. A doctor in the neighborhood saw her within a few minutes, and passed a probang, which he thought had gone down to the stomach. He gave the child a powder which had the effect of making her vomit, and the vomiting continued during the whole night. This occurred on Sunday, April 25, 1875. The next day she seemed sick and prostrated, and would not willingly take food, evidently on account of pain in the act of swallowing. She was able to swallow liquids, but bread or other solids would go down for a certain distance, and then be rejected. There was a little cough, no dyspnœa, and no evidence that the child felt any local pain.

This continued till Thursday, the 29th, when I first saw her, she in the mean time being constantly up in the mother's arms, very weak, and most of the time with high fever. I examined the fauces with my finger, the patient being under the influence of ether, but could not reach any foreign body, nor could I discover any swelling or abnormal condition of the parts within my reach. Careful exploration of the neck externally did not reveal any tumefaction, or any other indication of the presence of the intruder. I then passed into the œsophagus a large leaden probe, which struck a metallic body after it had passed about five inches. I estimated its position to be a little below the cricoid cartilage, but renewed external palpation failed to reveal its presence. I then passed down a pair of long curved forceps, with which I could easily touch the jack, but after repeated efforts with instruments of varied form and size, I could not succeed in getting a hold on it. Although as gentle as possible in all our manipulations, a small quantity of bloody mucus showed me that some damage was being done to the mucous membrane, and I desisted after trying a large bougie with which I thought I might push the foreign body down into the stomach. In this, however, I did not succeed, the instrument only passing, as before, about five inches, and being there firmly arrested.

The next day, Friday the 30th, having provided myself with other appliances, and having asked Dr. George A. Peters, Dr. T. T. Sabin, and Dr. McBurney, to assist me, we all met with Dr. Ranney, in whose care the case originally was, and the manipulations of the day before were repeated and varied in every way, without any success in dislodging the piece of iron. It could easily be touched, and several times was fairly seized by the forceps, but they could not be made to keep their hold. Fearing that further attempts would only increase local mischief, on consultation we decided to proceed at once to œsophagotomy, for which we had the consent of the parents.

An incision was made about midway between the trachea and the sterno-mastoid muscle, commencing opposite the middle of the thyroid cartilage, and extending to within less than an inch of the top of the sternum. Passing down between the sterno-mastoid and sterno-hyoid muscles, and pushing the omo-hyoid outward, we came down to the level of the carotid sheath, which was also pushed outward, and from this point the dissection was mainly conducted by the handle of the scalpel. Carefully displacing the loose connective tissue, we came down upon the side of the œsophagus, along which could be distinctly seen the inferior laryngeal nerve, at this point giving off a considerable lateral branch to the trachea. This nerve was carefully pushed forward, and it was noticed that every time it was pressed upon by the finger, or the curved spatula, the child showed signs of marked laryngeal distress. One of the pairs of long curved forceps we had been using was then passed down closed into the œsophagus, and by it the œsophagus was brought into relief in the wound. A longitudinal incision, of about three-quarters of an inch, was then made, opening into the tube, bringing its cavity very distinctly into view. Drawing the lips of the œsophageal opening well apart, the position of the foreign body was plainly revealed. One opening had been made, of course, on the left side. Opposite to the opening, therefore, on the right wall of the tube, was seen one limb of the jack projecting into the tube, while the main body of the jack was entirely outside of the tube, which it must, therefore, have perforated from within outward. How this irregularly shaped body could have traversed the wall of the œsophagus, whether forced through by muscular contraction tending to close the tube upon it, or whether it was pushed through by the sponge probang, or by the repeated handlings of it with the forceps, could not now be ascertained; the fact was plainly visible to all. That it was pushed through by mechanical force, and not by a process of ulceration, seemed evident from its being surrounded and hugged by sound tissues so closely that I had to cut a part of the œsophageal wall, in order to get the body back into the tube, and that there was no indication of inflammation, ulceration, or suppuration in the nidus from which it was removed. By making this incision, and thereby releasing one of the buried iron points, the whole was easily rolled out of its bed and removed. It was evident that the body of the jack must have lain outside of the œsophageal tube, and between it and the carotid sheath, upon which it must have already begun to press.

The wound was brought together in its upper three quarters by fine silk sutures, the lower fourth being left opened. Into this open portion of the wound a silk tent was inserted for drainage. No attempt was made to close the wounds of the œsophagus. No vessel had been wounded which required a ligature. The wound was dressed lightly; but, of course, without antiseptic precautions, which were then but imperfectly understood. The parents were directed not to allow the child to swallow anything, and an enema of beef-tea or milk was ordered to be given every three hours. We were informed that from the very first the child had been averse to swallowing anything, and in consequence had grown very thin and feeble.

May 1. Passed a restless night, without sleep. Enemata retained only for abou an hour. Ordered three drops of laudanum with each.

2d. Great thirst; emaciation very evident, very feeble; wound looks well; no trouble about throat; no swelling of neck.

4th. Has been allowed to swallow water freely. It seems to give comfort, though it all comes out of wound, as ascertained by measurement. She swallows easily. Stitches all removed; the wound gapes freely. Enemata are retained longer by the help of the laudanum. She is losing flesh rapidly. No cough, and respiration easy.

8th. Seems to be nourished very imperfectly by the

enemata, though they are given faithfully. The wound does not granulate; all adhesions have broken up, and it seems to be incapable of reparative action. Some little milk is found by measurement to go down to the stomach, but only a trifling quantity. Some bronchitis from constant wetting of the chest. Thirst not so great; very restless and sleepless.

10th. Enemata have been given by the long tube and in larger quantity, with a little brandy. She looks a little better, and her pulse is stronger. A patch of erysipelas showed itself on the nose. Ordered the patch to be painted with tinct. ferri mur., and to add one grain of quinine to each injection, which are now pretty well retained.

11th. Seems brighter, but erysipelas has spread on the forehead. She retains the enemata, but she is poorly nourished. I have abstained from passing a tube through the œsophagus, on account of its very damaged condition. Beside the wound made in opening the tube on the left side, there is another large opening on the right side made for the extrication of the foreign body; and there is also, without doubt, much laceration of the mucous membrane caused by our persistent efforts at seizing it with the forceps. I fear that the passage of an instrument from the mouth might do much mischief, and might increase future trouble, should the patient recover. The pulse is much better. No reparative action in the wound.

12th. A sudden change took place after my visit yesterday. The child seems now dying of mere inanition, though the enemata are given regularly, and are mostly well retained. I immediately introduced a tube into the stomach, and threw in four ounces of warm milk punch. It was too late; the child rallied for a little time, and died about three hours after.

Case II.—Richard Ghent, aged twenty-four, a painter by trade, was admitted to the New York Hospital January 22, 1886. About five weeks before admission, while eating supper, a plate containing four artificial teeth broke in his mouth, and the palate portion was swallowed. He made attempts immediately to vomit, and tried to dislodge the plate but did not succeed. He says that several surgeons have made attempts to remove the plate, but have not succeeded. The patient is a man in fair condition of health and vigor, and does not seem to have suffered materially from failure of nutrition. This is due to the fact that though he has not been able to swallow solid food, he has been able to swallow fluid with comparative comfort. He says he can feel distinctly the spot where the foreign body has lodged, and indicates a point just below the larynx, but says it gives him no pain, nor is there any tenderness to be discovered in the region where he says he feels it. A large No. 10 œsophagus tube detects an obstruction just below the cricoid cartilage, about eight inches from the teeth; a small one, No. 4, passed easily into the stomach.

January 29. Attempts were made to remove the plate, and it was found not difficult to seize it with the coin-catcher; but when seized, it was found so immovably fixed, that the force that we thought it safe to employ did not change its position in the least. A large stomach-pump tube was then passed down to the foreign body, and an attempt made to force it downward into the stomach, with the same result. From the long time which had elapsed since the time of lodgment, and from the fixedness of the body, I felt quite sure that it had partly ulcerated its way out of the tube, and that therefore any undue force in extraction would, while unavailing, prove disastrous to the œsophagus, and to the parts around. Reasoning thus, we recommended that another attempt should be made under ether, and, that if not successful, that œsophagotomy should be performed.

February 9. The patient was placed fully under the influence of ether, and again the foreign body was seized with the coin-catcher, but the complete relaxation produced by the anæsthetic had not loosened in the slightest degree the grasp of the œsophagus, and the operation was proceeded with. An incision four and a half inches in length was made, extending from the top of the thyroid cartilage nearly to the clavicle, along the inner border of the sterno-mastoid muscle, passing obliquely so that the upper end of the incision was half an inch internal to the edge of the muscle, while the lower end overlapped it nearly as much. The omohyoid was divided, and then passing down between the sterno-mastoid and sterno-hyoid muscles, and pushing the thyroid body inward, the side of the œsophagus was easily reached by separating the loose areolar textures with the fingers and the handle of the scalpel. The recurrent laryngeal nerve was not seen, and no vessel of a size requiring ligature was cut. The œsophagus was now made to bulge into the wound by passing the large stomach-pump tube down to the point of obstruction, and then pressing with the fingers deeply on the right side of the trachea. This brought the side of the œsophagus fully into view, and enabled us very easily to make a longitudinal incision into it about an inch long, opening the tube just above the point of lodgement and bringing into view the foreign body, which was seen to occupy a position parallel with the axis of the œsophagus, and about at a right angle to the median plane of the body. It was seized with a dressing forceps, but was found as immovable as ever. It was not till the incision was prolonged downward, so as to cut through the œsophageal wall which embraced the plate so firmly, that the plate could be stirred from its bed. It was then easily removed.

It would naturally be expected that such firm impaction during so long a period would have been accompanied by some ulceration of the surfaces against which the foreign body had so long been pressing. A careful inspection with a good light enabled us to feel pretty sure that very slight abrasion of the surface had taken place, and that the reason why the plate was so firmly held was that the tube had contracted so firmly above the point of distention as to resist our efforts at dislodgement. A soft rubber tube was now introduced through the wound, and passed into the stomach, and there permitted to remain. Careful antiseptic dressings were applied, from which the tube, which had a funnel-shaped extremity, was allowed to project. It was extremely easy to pass fluids through this tube into the stomach, usually by merely pouring them slowly into the funnel, though occasionally it was necessary to force them through with the stomach-pump.

There was almost no inflammatory reaction after the operation. The temperature scarcely rose above 100°, and the wound behaved in a most satisfactory manner.

The tube gave no pain or uneasiness, and afforded the most comfortable possible means of alimentation. His general condition was well maintained, and his nutrition perfect. On the 19th, as the wound was granulating finely, and looking perfectly healthy and ready to heal, the tube was removed. Before it was taken out, however, a similar tube was introduced into the left nostril, and as the first tube was removed, the second was slipped by the wound into the stomach. This again proved an easy and comfortable way of feeding, the tube through the nose giving rise only to a little soreness in the meatus through which it passed, but not enough to call for treatment. This second tube was used with a view to prevent any matters getting out of the œsophageal wound in the act of deglutition into the yet unhealed fistulous track left by the removal of the original tube. It seemed to answer its purpose perfectly, the wound closing promptly and healing so well that on the 26th the nasal tube was removed, and the patient was allowed to swallow soft food without restriction. No further interruption to the healing occurred, and the patient was well by the 15th of March.

The operation of œsophagotomy, for the removal of impacted foreign bodies, is now one of universal acceptance. As a legitimate surgical resource, however, it was slow in achieving this position, and was received with much distrust and hesitation, till within a comparatively recent period. Mr. Arnott, Surgeon of the Middlesex Hospital, writing in 1883, says: "Incision of the œsophagus for the removal of a foreign body is an operation which has rarely been performed. It is stated to have been twice executed in France about a century ago, and once again lately, but I can find no record of its having been done in England."

Since the occasions for its performance must have been quite as frequent in former times as they are at present, it is not quite easy to explain the timidity of good, and otherwise bold, surgeons in regard to this operation. It seems likely that the depth of the incision in the neck necessary to reach the œsophagus, and the important organs among which that incision must pass, deterred surgeons from attempting œsophagotomy in cases when we should now consider it clearly indicated. Perhaps, also, the fact that the occasions for its performance were so rare that no one surgeon could ever hope to acquire a large experience in it. That this is true is seen by statistical tables, which show that out of eighty-two cases which have been collected up to date, only five men had more than two cases, and of these five only two had an experience embracing five cases. But, probably, the most potent reason for not doing œsophagotomy was found in the illusive hope that the foreign body would be spontaneously dislodged. This hope has been, I feel quite sure, encouraged by the frequency with which foreign bodies have been spontaneously expelled from the air-passages, after a lodgement of months and even years. Increasing experience has shown that the physical and vital conditions are not the same in the two sets of cases. In the air-passages we have an open tube, a column of air to act upon the foreign body, and all the power of the numerous and strong muscles engaged in the effort of forced expiration. If it were not for the spasmodic resistance of the glottis, every foreign body, not too firmly fixed by size, or shape, would be easily expelled through the larynx. No such provision exists in the œsophagus, and if the intruder cannot be dislodged by forceps or probang, and canno be pushed into the stomach, there seems to be almost no means, and therefore little hope, of spontaneous expulsion.

The consequences of such undisturbed lodgement are now understood to be disastrous in every case, and fatal in a frightfully large proportion. These consequences are familiar to us all, and are yearly illustrated by fatal cases published in the journals. One of these was related by Dr. W. T. Bull, at a recent meeting of the Society, in which a horse-chestnut, lodging near the cardiac extremity of the pylorus, had produced a perforation of the pleura, which was filled with a mixture of various ingesta in a state of decomposition, the lung itself being collapsed. Mr. Bryant quotes several cases: one, in which a fish-bone caused death by perforation of the heart; another, in which the aorta was eroded by a sharp spicule of bone; and another, in which fatal inflammation of the spinal cord was produced as a consequence of ulceration of the intervertebral substance following the arrest of a piece of bone in the œsophagus. Mr. Bryant also alludes to two cases reported by Mr. Erichsen, in one of which a piece of gutta-percha formed for itself a bed in the wall of the œsophagus for upward of six months, and destroyed life by ulceration into a large vessel, and consequent hemorrhage; and a second, in which a fatal result was brought about by a half-crown ulcerating its way into the aorta. One very interesting case occurred to Mr. Bennet May, showing how dangerous results may be apprehended long after the original impaction. It occurred in a child seven years old, from whom he removed, by œsophagotomy, a halfpenny which had been swallowed three years and a half before. It had ulcerated through the œsophagus, and opened the right bronchus, and was lying partly in the bronchus and partly in the œsophagus. Mr. May had the good fortune to save his patient. Many other fatal results of œsophageal impaction might be cited, but from the cursory glance I have been able to take of the literature of the subject, I feel quite sure that it would be difficult to find, among all the recorded cases, as many of spontaneous recovery as I have here given as fatal issues.

These considerations explain, at least in part, the slow progress of this operation in public favor, and at the same time they point out the indications for its performance. Thus it may be stated that where a foreign body has lodged in the œsophagus, and cannot be removed by forceps or snare from the mouth, and cannot be pushed into the stomach, it should be removed by œsophagotomy, provided it has lodged at a point accessible to the surgeon's knife, and that the operation should not be delayed in the hope of spontaneous expulsion. Of course, before proceeding to so serious an operation, the diagnosis should be certain, and this usually presents no difficulty. The history of the accident, the sensations of the patient, the behavior in regard to swallowing, and, above all, the positive evidence afforded by the bougie, usually leave no doubt in the mind of the surgeon both as to the fact of impaction, and of the precise spot at which it has occurred. It should be noted here that external palpation rarely gives any assistance in ascertaining the presence of a foreign body lodged in the œsophagus. The tube lies

so deep behind the trachea, and below all the muscles of the neck, that the hardest and most irregular substances lodged in it, can very rarely be appreciated by external examination. Of the operation itself, nothing needs to be said to this Society. The plan of it is simple, and the execution easy, requiring only delicacy and carefulness in its performance. It should be done on the left side, as the œsophagus inclines to that side, and it should be commenced by a very liberal incision, four or five inches in length, in order to give a chance to conduct the deeper manipulations, as far as possible, by the sense of sight.

It is more particularly to the management of the case after operation that I wish to direct attention. Various plans have been suggested by various operators, as to the two prime points which present themselves to the surgeon after he has completed his operation. First, the healing of the wound with the least risk of complication; and, secondly, nutrition of the patient, not merely with the view to sustain life, but also of maintaining reparative power at a point at which it will prove itself capable of healing a large, deep, and difficult wound. I feel that it was a failure, on my part, to appreciate the importance of this latter point, which caused the unfortunate result in my first case, and I determined, should another case be placed in my hands, that malnutrition should not cause its failure if it could be prevented. Of course, it is understood that swallowing of food, in the usual way, cannot be permitted, for the obvious reason that such swallowing would prevent the healing of the wounded gullet, would allow the escape of food in a more or less septic condition into the cavity of the wound outside, and thus inflammatory complications, of the most serious nature, would almost necessarily supervene. To maintain the nutrition of the patient then, either food must be transmitted to the stomach by tubes past the wounded point of the œsophagus, or else reliance must be had on rectal alimentation. Rectal alimentation, however, affords us only a limited resource in nutrition. Though it may serve us well during temporary interruption of gastric digestion from any cause, yet life cannot long be sustained by it, and when sustained, the nutritive conditions can rarely be kept up to the high reparative point necessary for the healing of a large operation wound. This view of the limitation of rectal alimentation has been growing stronger in my mind ever since my attention was called to the subject by the conspicuous failure to secure proper nutrition in the first case I have narrated; and I believe that if I had fully appreciated just how little reliance was to be placed on it, my little patient might have been alive and well at this moment. It is true, in this case, the conditions were unfavorable for the passage of a tube through either the mouth or the wound. The extensively damaged œsophagus made it highly proper to avoid further injury, if it could in any way be avoided, and this must be the explanation, if not the justification, of the course pursued. But had I at that time had the same convictions I now entertain, with reference to rectal alimentation, I should, at all hazards, have passed a tube through either the mouth or the wound, and thus have secured that full reparative nutrition, without which, in my case, all repair broke up at the wound, erysipelas set in, and the patient sunk so rapidly that when a tube was introduced, and plentiful nourishment was supplied, it came too late to save the life which I had been for so many days blindly trusting to a most unreliable supporter.

The management of the second case seems to me to present a much better prospect of success. Determined to secure gastric alimentation, the choice of means lay between introducing a tube through the mouth or wound, whenever it was necessary to give nourishment, or leaving a tube, passed the mouth or wound, constantly *in situ*, thus permitting nourishment being given whenever desired. I chose to leave the tube in the wound for several reasons. First, I thought that the tube would insure the drainage from the bottom of the deep wound; secondly, that it would tend to prevent the entrance of any matters regurgitated from the stomach; and, lastly, I was confident that the tube through the wound would be much less distressing to the patient than a similar tube passed through the mouth or the nostril. I entirely rejected the idea of the frequent introduction of the tube, because I felt convinced that such a procedure would not only seriously disturb the healing process, but would be such a dread and a trial to the patient, and such a tax on the surgeon, that the result would be that the tube would be introduced as rarely as possible, and when introduced the stomach would be distended with as much food as it would hold, in order to prevent the necessity of early repetition of the troublesome procedure, a condition of stomach by no means conducive to comfort, or to good digestion. In all these respects, the case answered my best expectations. The tube in the wound, coming out through the dressing, was always available for use, and small quantities of nourishing fluids were constantly supplied by the hands of the nurse without pain, trouble, or any overtaxing or distressing of the digestion; and regurgitation, which rarely occurred, took place through the tube without at any time appearing around or through the dressings. The wound was perfectly drained, and granulated healthfully from the beginning. The change to the nasal tube was made at the end of ten days, and this latter was kept in place for a week, to allow the wound to fill up solidly with granulations. The healing of the wound from this time was rapid and complete. The man is not now conscious of any impediment to the act of swallowing.

The results of the operation of œsophagotomy are encouraging. I am indebted to my friend Dr. S. W. Gross of Philadelphia, for the following statement which he very kindly gleaned for me from his abundant statistical resources. The whole number of persons operated upon up to date is 82. Of these cases, 63 were successful, and 19 followed by death. Of the 82 cases the foreign body was found and removed in 74, and of these, 57 recovered and 17 died. The foreign body was not found in 7 cases, and in one case it was found, but slipped into the stomach, and passed *per anum*. In one of Bull's cases, the foreign body slipped into the stomach, and was thence removed by gastrotomy, the patient dying of peritonitis. In this case, of course, the fatal result should not be credited to the œsophageal operation. Of the 16 fatal cases of œsophagotomy, 8 are stated to have died of abscess, provoked by the lodgement of the foreign body, 2 died of exhaustion, 2 of scepticæmia, 1 of pneumonia, and

the rest not c early stated. It would be interesting to know the relation of the death-rate to the time at which operation was performed after the impaction. I feel certain that delay is accountable for a very greatly increased death-rate.

In this connection it may be well to call attention to the evil effects of delay even in those cases where the foreign body can be dislodged without œsophagotomy. In these cases two causes contribute to make delay disastrous. First, the tendency of the foreign body, particularly if it is hard and rough, to make its way out of the tube by ulceration, as illustrated by the first case here reported; and, secondly, by the contraction of the circular fibres of the œsophagus round the intruder, as described in the second case. Both of these causes are cumulative in their action, and delay, therefore, must be constantly rendering both of them more and more efficient for mischief. A gold plate which to-day can be removed with comparative ease, has by to-morrow so buried its sharp points into the mucous membrane, or is so firmly grasped by muscular contraction, that œsophagotomy has become the only resource; and the horse chestnut, as in Dr. Bull's case, which, on the day on which it was swallowed, might easily have been pushed into the stomach, gave infinite trouble when attempts were made several days after to dislodge it and finally caused the death of the patient.

From these considerations, I would deduce the surgical rule to attempt the removal of foreign bodies impacted in the œsophagus as soon as proper instruments can be procured, and failing after a fair and sufficient trial, to proceed at once to the operation of œsophagotomy.

DR. ROBERT ABBE thought an attempt should always be made with considerable hope of dislodging the foreign body under ether. The past winter he saw a woman twelve days after she had swallowed a plate with one tooth, which had lodged two inches below the cricoid. A great many attempts had been made for a week by two or three surgeons to remove it, but without success. Dr. Abbe was able to get the coin-catcher behind the foreign body, but with all the force which he dared exert he failed to dislodge it. The patient was then put under the influence of ether, which so relaxed the œsophageal structures that, with less force than he had previously exerted, he was enabled to remove the plate.

It seemed to him, also, that the œsophageal wound might safely be closed, and the tube be introduced, protruding from the mouth from the first. This fact was demonstrated in some cases recently reported in British journals, in which the patient tolerated the tube for a number of days with comparative comfort.

DR. MARKOE said he had not seen the reports referred to by Dr. Abbe, but he knew of some cases in which that practice had been adopted, and the objection to it was that the tube caused a great deal of faucial irritation, and it was abandoned. But in his own case the tube being introduced through the wound gave such comfort that he would not think of trying any other method.

DR. A. G. GERSTER wished to add his testimony to the advantages of the continuous use of the elastic tube for alimentary purposes, as illustrated in three cases. Two were cases of partial extirpation of the larynx, in one of which the tube was left in for twelve days, and in the other for fourteen days. In one the tube projected through the wound made by removing one-half of the larynx, and was borne so well, and enabled alimentation to be carried to such an extent, that the patient increased very rapidly in weight. In the third case, in which the entire tongue and floor of the mouth down to the epiglottis and middle portion of the inferior maxilla were removed, and deglutition was out of the question, the tube was still in (the sixteenth day after the operation), and alimentation was kept up with a great deal of comfort to the patient. In this case a strong fillet of silk was passed through the stump of the tongue, in order that the subsequent introduction of the tube might be facilitated by pulling the stump forward; but when the tube was removed on the fifth day, and an attempt was made to feed the patient in the afternoon, it caused so much disgust and excitement that the tube was replaced, and food was introduced as before. He was anxious to remove the tube, as it was one of English make, hard and webbed, and was liable, by pressure of the calcareous tracheal rings, to produce a sore. But such an effect did not take place. The tube was removed once in three or four days for purposes of cleansing and replacing it by a new one, if it had become rough. By nourishing the patient through the œsophageal tube they had been enabled to carry him through an attack of catarrhal pneumonia, which developed the third day after the operation.

DR. F. LANGE performed œsophagotomy last summer at the German Hospital upon a man about forty years of age, who had swallowed a plate with several teeth some time before admission, but exactly how long he could not recall. Previous to admission some surgeons had made ineffectual attempts to withdraw the foreign body, which was situated near the entrance to the stomach. Dr. Lange failed under anæsthesia, and then performed œsophagotomy, thinking he would thus be enabled to get a safer grasp on the foreign body. He was, however, still unable to extract it, or to push it down, until finally it went down into the stomach under very slight pressure. The further fate of the foreign body was unknown; the man was discharged after some weeks cured, and had not been heard of since. With regard to the treatment of the wound, he closed the walls of the œsophagus by catgut, inserted only a few sutures in the external wound, leaving it partially open, and making free drainage. The man swallowed from the beginning, the first days receiving only small quantities of water and milk administered cautiously. First union took place, the wound closing quickly. Dr. Lange thought such treatment would be justified in cases in which the tissue at the œsophageal opening was healthy. He did not know that it would be proper if suppuration had taken place at the point of operative interference. In this case the treatment was quite satisfactory; no food appeared at the external wound.

DR. MARKOE said that success depended entirely upon closure of the œsophageal wound, and if this could be secured the method adopted by Dr. Lange was undoubtedly the best. But if union failed to take place at any point in the line of incision, septic material would be likely to enter it, especially during the act of swallowing food. More recent writers, he believed, are almost unanimous in the opinion that the wound should not be closed.

The President remarked that in the case of the child whose history Dr. Markoe had related, it would have been unwise to close the œsophagus, and allow the child to swallow at once, as it would have forced the food into the lacerated tissue on the right side of the œsophagus.

Dr. Hutchison thought that when it became necessary to introduce the œsophageal tube to nourish a patient it would be much more convenient to the surgeon and more comfortable to the patient to introduce it through the nose. Such had been his experience after extirpation of the tongue, and in other cases. He had observed the same difficulty referred to by the author of the paper when the tube was introduced through the mouth, namely, faucial irritation. He had employed the tube as long as fifteen days, taking it out now and then to cleanse it, and substituting a smooth one if it become roughened.

PERFORATION OF INTERNAL ILIAC VEIN BY FOREIGN BODY IN THE INTESTINE.

Dr. L. A. Stimson presented a portion of the large intestine and of the internal iliac vein, with the following history:

The patient, an Italian about twenty-five years old, was admitted to the Presbyterian Hospital, complaining of pain in the region of the left ilium. Some slight thickening could be felt in the left iliac fossa, and the left thigh could not be completely extended. He had continuous fever and, later, diarrhœa. After the lapse of two or three weeks, a large smooth fluctuating swelling appeared suddenly between the left trochanter and the crest of the ilium, which, on exploratory puncture, yielded only dark liquid blood. A few days later the swelling, which had spread a little beyond the posterior median line, was found to be remarkably resonant. It was opened, and discharged a large amount of offensive liquid feces mixed with blood. It was found that the feces had escaped through the upper part of the great sacro-sciatic notch. Three days later he died exhausted.

At the autopsy, a steel shawl or bonnet pin seven inches long with a black composition head one-quarter inch in diameter, was found in the descending colon; the head lay at the splenic flexure, and the point had traversed the posterior walls of the bowel and rested against the inner surface of the ilium. Two inches below this perforation was another one-half inch in diameter, also in the posterior wall of the bowel, and communicating with a large cavity occupying the adjoining part of the iliac fossa, extending over the line into the true pelvis, thence communicating with the fecal abscess into the buttock. In a search for the source of the bleeding, the common, external, and internal iliac arteries and veins were found to be uninjured, but in the anterior branch of the internal iliac vein was an ulcerated opening which established free communication between its interior and the cavity of the abscess.

No history could be obtained which threw any light upon the means by which, or the purpose for which, the pin had been introduced. It must, of course, have been introduced through the anus, and, after having worked its way up to the splenic flexure, had perforated the bowel and thus led to the formation of the fecal abscess. The implication of the vein explained the sudden appearance upon the buttock of the swelling containing blood.

NEWS ITEMS.

American Medical Association.—The Chairman of the Section on Practice of Medicine, Physiology, and Materia Medica, begs to call the attention of the members to the increased interest of the proceedings of this Section at the coming Convention.

Papers have been already promised by Drs. Wm. Pepper, of Philadelphia, on "Nitrate of Silver in Catarrhal Jaundice;" L. Bruner, of St. Louis, on "Essential Vertigo;" Chas. Warrington Earle, of Chicago, on "Pancreatic Anæmia;" Albert C. Haven, of Lake Forrest, Ill., on "The Etiology of Disease;" Jno. B. Elliott, of New Orleans, on "Fever;" F. H. Patten, of the Nat. Military Home of Dayton, Ohio, on "Pneumonia in the Old;" L. Duncan Bulkley, of New York, on "The Treatment of Felon without Incision;" Philip Zenner, of Cincinnati, on "The Diagnostic Value of the Patellar Tendon Reflex;" A. F. Pattee, of Boston, on "Potassium Chloride;" O. F. Schultz, of Mt. Vernon, Ind., "On Antipyretic Doses of Quinine in Typhoid Pneumonia;" Edward F. Wells, of Chicago, on "Pneumonia in Pregnancy," and Frederick N. Huehn, of Rockland, Maine, on "Certain Hitherto Unnoticed Principles Aiding the Circulation of the Blood."

The session of May 6th, will be partly devoted to a demonstration with the Cabinet, by Dr. H. F. Williams, of New York, of the principles of "Pneumatic Differentiation," to be followed by a discussion to be opened by Dr. E. Fletcher Ingalls, of Chicago, and at some period of the Convention, date to be announced, Dr. Joseph Jones, of New Orleans, will give a *résumé* of "Sixteen Years' Practice in the Charity Hospital of New Orleans."

Resignation of Dr. Curtis.—Dr. Edward Curtis tendered his resignation as professor of materia medica to the faculty of the College of Physicians and Surgeons, of New York, on Wednesday. He had informed the faculty some time ago of his intention to resign at the end of this term, and as they had secured Dr. George L. Peabody to be his successor, his resignation was accepted. For fourteen years Dr. Curtis has been a professor in the College, and his work has been appreciated by students and faculty. His resignation was caused by the pressure of outside business. As medical director of the Equitable Life Assurance Society, the greater part of his time and attention is called away from his college duties. Dr. Peabody will assume his new duty in October.

Journalistic Enterprise.—During the session of the American Medical Association at St. Louis, *The Weekly Medical Review* of that city will publish a daily issue with reports of the proceedings.

Laying the Corner-stone of the College of Physicians and Surgeons.—On Saturday, April 25, the corner-stone of the new building of the College of Physicians and Surgeons, of New York, was laid in the presence of a large and enthusiastic audience.

The new building, of which Mr. W. Wheeler Smith

is the architect, is on the north side of Fifty-ninth Street, between Ninth and Tenth Avenues, opposite Roosevelt Hospital, and extending back to Sixtieth Street. The frontage on Fifty-ninth is 140 feet, and on Sixtieth Street 96 feet. The whole depth of building from street to street is 182 feet. The Fifty-ninth Street portion of the building will have a cellar, and be four stories above the sidewalk, and the Sixtieth Street portion three stories above, and also with a cellar. The building will be 70 feet above the curb on Fifty-ninth Street. The main building, or that on Fifty-ninth Street, will contain on the first story offices for the Trustees, Secretary, and clerks, students' study, and conversation and coat rooms; the second story of this part of the building will contain a large anatomical museum and professors' and patients' rooms; the third story, the "Swift" museum, recitation- and demonstration-rooms, and physiological department. The fourth story will be entirely devoted to dissecting, with adjacent rooms, which are lighted from the roof by skylights of unusual size. The dissecting-room will have thirty-six tables, and, it is claimed, will be one of the finest rooms for the purpose in the world. The lecture-room will be in the intermediate room on first floor, 48 feet by 55 feet, and will seat 450 students, as will the amphitheatre, which is on the second floor of the building. The Sixtieth Street building, with its three floors, will be devoted to laboratory purposes, with the exception of the janitor's quarters, and will have a private entrance.

The buildings will be of Haverstraw brick, with terra-cotta trimmings, and various courses of granite distributed throughout. The Fifty-ninth Street or principal entrance will be commodious and handsomely finished. A bronze statue of Mr. Vanderbilt, by Mr. J. Q. A. Ward, will occupy a prominent place in the building. Arrangements have been made for perfect ventilation and heating. There will be four separate fans in the building and three sixty-horse power boilers in an external room at the easterly end of the structure.

Chair of Anatomy in the Jefferson Medical College.—At a meeting of the Board of Trustees of the Jefferson Medical College held April 26, 1886, Dr. William S. Forbes, Demonstrator of Anatomy in that School, was appointed to the Chair of Anatomy left vacant by the resignation of Dr. William H. Pancoast.

Reduced Rates to St. Louis.—A special excursion rate has been made by the Pennsylvania Railroad for members of the medical profession desiring to attend the meeting of the American Medical Association, at St. Louis.

The entire expense from Philadelphia to St. Louis and return will be $35. This includes railroad tickets, sleeper, and meals. Tickets good on any day or train, except on New York and Chicago Limited Express. No change of sleeping cars between Philadelphia and St. Louis. Orders for such tickets can be procured from Dr. S. Solis Cohen, Sectetary of the Philadelphia County Medical Society, 1431 Walnut Street, between 4 and 6 P. M.

The Use of Calf-lymph for vaccination has been made compulsory in the Grand Duchy of Baden from March 1st.

George N. Powers, M.D., has been appointed to the Chair of Ophthalmology and Otology in the Medical Department of the University of California, to fill the vacancy occasioned by the recent death of Professor A. M. Wilder, of San Francisco.

The Council of the British Medical Association on the Death of Dr. Flint.—At a meeting of the Association Council held in London, on April 14th, Dr. Foster, President of Council, reported the death of Dr. Austin Flint, who had consented to deliver the Address in Medicine at Brighton in August next. He was sure that every member of the Council would feel with him that, in this untimely removal of that distinguished American physician, the loss had been one which would not only be felt by the Association, as members of a common profession, but would also affect the medical profession throughout the civilized world. He moved, "That this Council has heard with sincere sorrow of the death of Dr. Austin Flint, of New York, and beg to express their sense of the great loss which the medical profession throughout the civilized world has sustained by his untimely death." Dr. Withers Moore, President-elect, seconded the motion in a few appropriate remarks, which was then carried.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING APRIL 24, 1886.

Long, W. H., *Surgeon.*—Granted leave of absence for seven days, April 24, 1886.

Banks, C. E., *Passed Assistant Surgeon.*—Granted leave of absence for ten days, April 20, 1886.

Armstrong, S. T., *Passed Assistant Surgeon.*—Granted leave of absence for five days, April 20, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 20 TO APRIL 26, 1886.

Taylor, M. K., *Major and Surgeon.*—Granted one month's leave of absence, on surgeon's certificate of disability, with permission to leave the limits of the Department.—*S. O. 39, Department of Missouri*, April 16, 1886.

Gray, Wm. W., *Captain and Assistant Surgeon.*—Ordered to Fort Maginnis, Montana Territory.—*S. O. 33, Department of Dakota*, April 16, 1886.

Woodruff, Ezra, *Captain and Assistant Surgeon.*—Ordered to Fort Missoula, Montano Territory.—*S. O. 33, Department of Dakota*, April 16, 1886.

Robertson, Reuben L., *First Lieutenant and Assistant Surgeon.*—Ordered for temporary duty at Fort Snelling, Minnesota.—*S. O. 33, Department of Dakota*, April 16, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING APRIL 24, 1886.

Lovering, P. A., *Passed Assistant Surgeon.*—Ordered to Navy Yard, New York.

Biddle, Clement, *Passed Assistant Surgeon.*—Detached from "Monocacy," ordered home, and wait orders.

Ames, H. E., *Passed Assistant Surgeon.*—Detached from Navy Yard, New York, and ordered to "Monocacy."

Crawford, M. H., *Passed Assistant Surgeon.*—Ordered to Naval Hospital at Washington.

Hord, W. T., *Medical Director*, and Spear, J. C., *Medical Inspector*, Delegates to the American Medical Association, to be held at St. Louis on May 5, 1886.

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AMERICAN MEDICAL ASSOCIATION.

THIRTY-SEVENTH ANNUAL MEETING, ST. LOUIS, 1886.

THE ADDRESS IN SURGERY.

THE PRESENT STATUS OF ABDOMINAL SURGERY.

Delivered May 5, 1886.

BY N. SENN, M.D.,

OF MILWAUKEE, WIS.

THE frequency with which grave complications followed even the most trivial operations before the introduction of the modern treatment of wounds, undoubtedly induced the great Hunter to remark, "The necessity for operation is in truth the defect of surgery." To-day, with an improved technique and the means at our disposal which, if properly applied, will furnish almost absolute protection against wound-infective diseases, the surgeon can, with a just source of pride and gratification, confirm the correctness of the assertion made centuries ago by Celsus, "quæ manu potissimun curat."

No one who is familiar with the medical literature of the last two decades can arrive at any other sentiment than that the legitimate sphere of the physician has been gradually growing smaller, or, if this statement is objected to, that the practice of medicine has become more and more surgical. In accordance with the spirit of the times, uncertainty and doubt in the diagnosis and treatment of disease must give way to positive knowledge and actual demonstration. Surgery has gained the supremacy over medicine because the principles upon which modern surgery rests have been made the subject of accurate investigation and positive demonstration in chemical, physiological, and pathological laboratories. The science of surgery is rapidly assuming a degree of accuracy approaching in perfection any of the exact sciences. During the last few years surgery has assumed a decidedly progressive and aggressive character. Operations which a few years ago would have been deemed impossible or unjustifiable, have become established, legitimate surgical procedures. In obscure, doubtful cases the scalpel is now frequently resorted to without fear of causing additional complications for the purpose of making *intra vitam* an anatomical diagnosis. Modern surgery has achieved its greatest triumphs in enlarging the field for the direct local treatment of disease, thus enabling the surgeon to treat with success injuries and lesions beyond the reach of medicinal agents. The surgical literature of the day bears abundant evidence that the remotest organs are now approached by the surgeon with comparative immunity, and that incalculable benefit has been derived from direct operative treatment. The affections of abdominal organs have received the well-merited attention of surgeons since the improved wound treatment has been introduced. Numerous maladies which heretofore have been considered incurable are now successfully treated by the surgeon by operative measures. Experimental research and clinical experience have demonstrated that organs and parts of organs which were heretofore regarded as indispensable and essential can be successfully extirpated when they are the seat of injury or disease. With a view of directing your attention to a few of the most brilliant achievements of modern surgery, I have selected as the subject of my address, "The present status of abdominal surgery"—a condensed, brief account of the more recent advances made in the surgical treatment of injuries and diseases of the abdominal organs must interest equally the physician and surgeon.

It is not my intention to trespass upon the legitimate field occupied by the ovariotomist or the gynecologist. I shall, therefore, limit my remarks to a consideration of such injuries and lesions of the abdominal organs as present themselves to the physician and general surgeon. It will be my special aim to point out the limitation of abdominal operations and to draw a distinct line between the feasibility and justifiability of such operations.

PENETRATING WOUNDS OF THE ABDOMEN.

During the last year the literature on this subject has been enriched by two valuable papers by Drs. Dennis (THE MEDICAL NEWS, February 27, and March 6, 1886) and Bryant, of New York. These contributions, made in such rapid succession, may be considered as sufficient evidence of the deep interest which has been awakened among American surgeons on this practical and important subject. Dennis has well said, "It is a source of national pride that laparotomy in penetrating wounds and visceral injuries of the abdomen was conceived, developed, and perfected in America."

The propriety of resorting to abdominal section in every case of penetrating wound of the abdomen is urged by many, but it cannot be said that this practice is sanctioned by the majority of the profession at the present time. The great difficulty that presents itself to the surgeon, in the absence of positive symptoms, is to differentiate between a penetrating and a visceral wound.

Clinical experience and statistics have demonstrated the importance of making a distinction between punctured wounds and gunshot wounds of the abdomen in reference to diagnosis and treatment. It is well known that penetrating stab wounds are less likely to be complicated by visceral injury than bullet wounds, consequently this class of injuries offers a more favorable prognosis and does not call so uniformly for treatment by abdominal section. As in stab wounds there is a greater tendency to prolapse of the intestine, exploratory laparotomy for diagnostic purposes is also less frequently called for. The numberless recoveries after stab wounds of the abdomen, without resorting to heroic treatment, must induce every thoughtful surgeon to abstain from subjecting the patient to the additional risks of laparotomy unless the symptoms are such that the existence of visceral injury can be assumed with a reasonable de-

gree of certainty. It must, however, be remembered, in arriving at conclusions concerning the nature of the injury, that the symptoms do not always correspond to the gravity of the visceral lesion; hence, if any doubt remains in the mind of the surgeon, it is justifiable and proper, now that exploratory laparotomy can be made with such comparative immunity, to resort to it and give the patient the only chance of recovery, ascertaining the exact nature of the injury, which can be the only proper and safe guide to rational and successful surgical treatment. Dr. Dennis has called special attention to volvulus as another complication of stab wounds of the abdomen, a condition which, when present, would in itself always indicate an abdominal section for its relief. In doubtful cases exploratory laparotomy can be done by enlarging the wound, which can be followed by the usual incision in the median line when operative treatment of the visceral lesion is required.

In gunshot wounds of the abdomen, the course of treatment to be pursued is more definitely settled by accumulated knowledge, resulting from careful experimental research and an immense clinical material. These injuries are so uniformly fatal that the slightest suspicion of injury of the intestine calls for treatment by laparotomy, as affording the only chance of recovery for the patient. The statement by Otis, that gunshot injuries of the small intestine are always fatal if treated upon conservative principles, is practically well established and is a sufficient argument in favor of treatment by abdominal section. In penetrating gunshot wounds it is highly probable that visceral injury exists, and this fact constitutes a potent argument in favor of surgical interference, which alone is adequate to prevent an inevitable fatal termination. The brilliant results which have been obtained by Bull, Hamilton, and others in desperate cases of multiple perforations of intestine by operative treatment, afford abundant encouragement for imitation of their practice.

It can be justly said that the surgeon who allows a patient to die from the effect of a visceral injury of the abdomen, produced by a stab wound or a bullet wound, without at least a proposition to resort to abdominal section, has failed to discharge the duties imposed by the teachings of modern surgery. Difficulties may be encountered by the medico-legal bearing of a case, but when called upon to treat an otherwise fatal injury, this should not deter the surgeon from resorting to the only measure which may save a human life. The first indication that presents itself in the treatment of an open wound of the peritoneal cavity, is to prevent infection by covering the wound with an antiseptic compress, until ample preparations can be made for more effective treatment. Whenever practicable, the necessary dressing or operation should be done with the least possible delay, and at or as near as possible the place where the injury was inflicted. Procrastination and transportation are dangerous factors in the treatment of this class of injuries, as both augment the gravity of the case by increasing the danger arising from the two most dangerous conditions—hemorrhage and fecal extravasation.

The preparation for an abdominal section should be made with the same care as in opening the abdomen for the removal of an ovarian tumor. If the operation has to be performed we can never rely on an aseptic atmosphere, hence the minutest details of antiseptic surgery must be followed. The wound, and especially the prolapsed viscera, must be kept protected as much as possible against the air by avoiding unnecessary exposure. As a disinfectant solution, corrosive sublimate should be preferred to carbolic acid. The temperature of the room should be kept at 80° to 90° F. Until the abdominal cavity is opened, the field of operation must be frequently irrigated. The intestine when brought out of the wound, should be carefully protected with a warm aseptic compress, kept moist with a weak solution of corrosive sublimate, with a view to prevent abstraction of heat and to guard against infection.

The abdominal section has for its object: 1. Positive diagnosis; 2. Arrest of hemorrhage; 3. Restoration of a breach of continuity; 4. Removal of extravasation. Exploration of a penetrating wound either with the finger or a probe is never justifiable, as it increases the danger from extravasation and hemorrhage without furnishing any information of a diagnostic value. The direction of the wound canal and the anatomical location of the different viscera must be carefully considered before resorting to operative measures.

When it becomes necessary to make an exploratory incision of sufficient size to enable the operator to introduce his hand, it is preferable to select the median line, as an incision at this point inflicts less additional traumatism, is attended by little or no hemorrhage, and can be utilized at once for the necessary operative treatment of the visceral lesions, if they exist. It is a source of comfort to the surgeon to know that the different operators experienced but little difficulty in detecting the seat of lesion in the bowel, and that usually all the perforations were found in multiple wounds of the intestine. It is unnecessary to urge upon you the importance of a careful search for additional injury when one perforation is found, as a failure to detect all of the openings in the intestine would frustrate the object for which the patient was subjected to such a grave procedure.

Great stress has been placed upon the importance of carefully arresting all hemorrhage. From the peculiar anatomical relations of the bloodvessels in the abdominal cavity, it has been found that even very small vessels will continue to bleed unless permanent hæmostatic measures are employed. If many bleeding points are encountered, a number of hæmostatic forceps can be applied before tying the vessels. If any of the large venous trunks have been injured, peripheral compression will facilitate the difficult task of securing the bleeding vessel. If the wound in the bowel can be approximated without producing too much narrowing of its lumen, it should be closed with a Lembert or a Czerny-Lembert suture.

If enterectomy becomes necessary, the two ends of the bowel should always be united with a Czerny-Lembert suture, as this suture secures accurate approximation of an extensive serous surface, and thus furnishes the most favorable condition for rapid union, which affords the best possible protection against the danger of subsequent extravasation. If fecal extravasation has taken place, it becomes necessary to resort to a careful toilet of the peritoneum, which can be accomplished most efficiently with large, flat sponges wrung out of a weak solution of sublimate.

When extensive soiling of the peritoneal cavity has taken place, it would appear most expedient to resort to thorough irrigation with warm sterilized water, with a view of effecting mechanical removal of all foreign substances. When this has been accomplished, the peritoneal cavity should be further cleaned and dried with a sponge wrung out of a $\frac{1}{20}$ per cent. solution of corrosive sublimate.

The abdominal incision is closed in the same manner as after abdominal section for other purposes, in all cases where we have reasonable cause to believe that we have succeeded in securing an aseptic condition of the peritoneal cavity; if any doubt remains upon this point, drainage is indicated. The subsequent treatment must be conducted on general principles, rest, absolute diet, and the administration of opium, being the most essential conditions in favoring rapid healing of the intestinal wound. In the future, shock will not be mentioned as frequently as heretofore as a cause of death in penetrating wounds of the abdomen, as it has only too frequently been mistaken for the symptoms due to acute anæmia from hemorrhage into the peritoneal cavity. Further, when life is threatened from this cause, a fatal termination can often be prevented by resorting promptly to transfusion of blood, or intravenous injection of saline solution, after the bleeding points have been secured. I am satisfied that no modern surgeon would hesitate to endorse the treatment of wounds of the intestines by abdominal section: the opposition to the operation can only be entertained in cases in which it is impossible, without an exploratory incision, to differentiate between a penetrating wound and a visceral wound. It is to be regretted that in perforating wounds of the intestine symptom are often deceptive, and cannot always be relied upon as an unerring guide in diagnosis. Grave symptoms may be almost entirely absent, and yet many perforations exist, while in other instances severe symptoms may enable us to make a differential diagnosis by the simple interpretation of these symptoms. We must insist upon the justifiability of exploratory laparotomy for diagnostic purposes in all doubtful cases, and upon the importance of treating all open visceral wounds of the intestines by abdominal section as affording the only chance of preventing an otherwise almost certain fatal termination.

LAPAROCOLOTOMY.

In cases of rectal cancer not amenable to extirpation, Madelung advises that the colon should be divided completely across low down, and the peripheral end should be permanently closed by inverting the margins deeply, and applying two rows of sutures. A preternatural anus is established by stitching the proximal end to the margins of the wound in the same manner as in forming an intestinal fistula in any other locality. The advantages of this operation over the ordinary method are twofold: 1, the diseased bowel is protected from contact with the intestinal contents; 2, no fecal accumulation takes place below the artificial opening, as is so often the case after the ordinary methods of colotomy. Pollailon and Letiévant advise the same operation.

SUBCUTANEOUS LACERATION OF INTESTINE.

One of the darkest chapters in abdominal surgery pertains to subcutaneous traumatic rupture of the intestine. That this accident occurs more frequently than has been generally supposed, is well proved by recent investigations, and as the majority of cases have been undetected during life, it is proper and important to consider the propriety of abdominal section in all cases in which we have reason to suspect its existence.

Muguier has called attention to the fact that in some instances the laceration may be incomplete and give rise to no serious symptoms for days or weeks until perforation takes place. A contusion of the abdomen is received, and the patient and surgeon are in the belief that no serious injury has been sustained until symptoms indicative of perforation and fecal extravasation announce the gravity of the primary lesion. He reports three cases of this kind which came under his own observation, only one of which terminated favorably, and in this case the perforation produced a suppurative perityphlitis. He cites four additional cases, of which two terminated in recovery after the formation of a fecal abscess. These cases should at least put us upon our guard to exercise proper care in the treatment of abdominal contusions, so as to prevent if possible the disastrous consequences incident to perforation. Regulation of diet, rest, and the use of opiates may do a great deal in the restoration of a partial loss of continuity of the injured bowel.

Chavasse observed two cases of laceration of the intestine from contusion of the abdomen, which induced him to compile all cases of rupture of the intestine due to the same cause. He found a record of 149 such cases. A careful study of this material led him to the conclusion that in almost every case laceration or crushing of the intestine takes place at a point between the place where the external violence is applied, and the unyielding resistance offered by the posterior abdominal wall. Of these cases only six recovered, while the remaining number usually died within twenty-four hours, with symptoms of perforative peritonitis. He is in favor of treatment by abdominal section with a view of suturing the torn intestine, or making an artificial anus.

Berger insists that laparotomy should be performed in all cases where a diagnosis of intestinal rupture can be made. In the differential diagnosis injury to the kidney becomes apparent from the character of the urine. Injury to the gall-bladder can be excluded if the patient vomits large quantities of bile. The direction and amount of force which produced the injury, as well as the extent of surface which was exposed to the violence, must also enter into consideration in determining the location and extent of the visceral injury. In contradistinction to the liver and spleen, rupture of the intestine must be suspected in case the force is applied over the median line anteriorly, forcing the intestines directly against the spinal column. Berger and Verneuil speak against primary resection and suturing in these cases, and advise the formation of an artificial anus. The great difficulty which presents itself to the surgeon is the absence of positive diagnostic symptoms.

In a recent paper Dr. Weir enumerates as the most prominent symptoms, collapse, rapid respiration, frequent wiry pulse, vomiting, thoracic respiration, emphysema, and absence of hepatic dulness. The last symptom, when present, is one of the most certain signs indicative of the existence of perforation, but it is also necessarily absent in all cases in which the liver has become fixed and immovable by inflammatory ad-

hesions prior to the accident. Emphysema and collapse are the two most important and reliable symptoms upon which to base a probable diagnosis soon after the accident has occurred. Extensive extravasation usually does not take place, as the experiments of Jobert upon dogs have shown that if the intestine is completely divided, the ends may contract by their circular fibres, and thus prevent escape of the intestinal contents. Of all the cases so far reported, the rupture was found almost uniformly in the small intestine and in preference in the first portion of the tract, the duodenum and the jejunum—an important hint in searching for the seat of laceration, on making abdominal section. The shock attendant upon this accident is more apparent than real, and is in no ratio to the gravity of the injury. It must also be remembered that hemorrhage is an important element of danger, and, when considerable, it may simulate the existence of shock. So far, the only case on record in which laparotomy was performed for traumatic laceration of intestine is reported by Mr. Owens, of London, who found the laceration, and sutured and returned the bowel. Unfortunately the patient died. Duplay affirms that the rupture, as a rule, is complete, and as such an accident must be uniformly fatal, abdominal section appears to be the only chance for the recovery of the patient, and should always be resorted to whenever the history of the case and the symptoms indicate the presence of this lesion. As the intestinal coats have undergone no pathological alterations, typical circular resection and suturing of the bowel should be practised in preference to the advice given by Chavasse, Berger, and Verneuil of establishing an intestinal fistula.

INTESTINAL OBSTRUCTION.

The treatment of intestinal obstruction by abdominal section is still in its infancy, but in view of the almost hopeless condition of patients suffering from obstruction due to permanent organic changes, the results which have been obtained by operative procedures should stimulate us to abandon the expectant treatment for more positive measures. Schramm has collected 190 cases of intestinal strangulation treated by laparotomy, including three cases observed by himself in the practice of Mikulicz. He alludes to the difficulties encountered in the diagnosis of these cases and pleads in favor of early operative interference. Of this number, 64.2 per cent. died, the mortality before the antiseptic treatment of wounds being 73 per cent., and since that time 58 per cent. The cause of strangulation and mortality attending each kind may be gleaned from the following table.

27	times	invagination . .	8	cured,	19	died.
49	"	bands, or intestinal diverticula . .	13	"	36	"
16	"	adhesions . . .	7	"	9	"
11	"	reduction *en masse*	6	"	5	"
10	"	torsions	1	"	9	"
12	"	knotting of bowel	4	"	8	"
12	"	internal strangulation	4	"	8	"
7	"	foreign bodies . .	4	"	3	"
38	"	neoplasms . . .	16	"	22	"
8	"	unknown causes .	5	"	3	"

The results of operations for internal strangulation will improve as soon as physicians recognize the insufficiency of the expectant plan of treatment and resort to timely operative measures before the strength of the patient has been exhausted, or the cause of strangulation has led to extensive secondary pathological changes in the tissues about the seat of strangulation. Recently Kussmaul has introduced irrigation of the stomach as a means of treating intestinal obstruction. While this measure does not exert any positive curative effect upon the cause of obstruction, it serves as an efficient palliative by diminishing hypostatic pressure and subduing increased peristaltic action, conditions which necessarily aggravate the symptoms of obstruction.

1. *Intussusception.* Until recently, the operative treatment of invagination has been considered by the majority of the profession almost in the light of a criminal procedure. At present, the indications are that most surgeons would resort to it in all cases when severe symptoms are present which would indicate the existence of acute or chronic obstruction from this cause, and not remediable by medical treatment or local measures. In cases in which no adhesions have taken place between the intussusceptum and the intussuscipiens, reposition can frequently be effected by the administration of an anæsthetic for the purpose of relieving abdominal tension, manual or instrumental attempts at reduction, inversion of the patient, forcible rectal injection of water, and massage over the invaginated bowel. The injection should be made slowly and uninterruptedly until resistance is overcome, but also with sufficient care to prevent rupture of the bowel.

If that measure fail to effect a reduction, no time should be lost in resorting to abdominal section with a view to facilitate disinvagination by direct manipulation. If by traction, direct compression, dilatation of neck of intussuscipiens, separation of adhesions, etc., reduction is not accomplished, circular resection of the invaginated bowel and the formation of an artificial anus above the invagination present themselves as the only means to save life within the range of operative surgery. The formation of a preternatural anus is preferable in cases in which a large portion of the bowel has become invaginated, and again where the general condition of the patient is so grave that the more severe operation of enterectomy is contraindicated.

In 51 cases in which laparotomy was done, reduction was successful in 26—18 children with 4 recoveries, and 8 adults with 5 recoveries. So far, no child less than six months old has recovered after operation. In the 25 cases in which reduction failed to be accomplished, or in which no attempt was made, in 4 the abdomen was closed without any further attempt being made; in all of them the result was fatal. Of 11 cases of resection, only 1 recovered, and this was Czerny's case, in which the disinvaginated bowel was resected on account of malignant disease. In 9 cases enterotomy was performed, as reduction was found impossible, and circular resection was deemed impracticable; in all, except one, death occurred a few hours after the operation. In the latter case life was prolonged for two days, the patient being an adult female.

So far, success has attended abdominal section for invagination in cases in which disinvagination by direct

manipulation was accomplished, an experience which argues strongly in favor of an early operation before reduction is rendered impossible by additional pathological conditions. It may be stated, as a rule, that temporizing measures should not be relied upon for more than two days.

In the case of adults, when chronic symptoms of obstruction precede an acute attack, the invagination is often due to the presence of a tumor upon the inner surface of the intestine, a condition so well illustrated by Czerny's cases reported by Fleiner. The first patient was forty-five years of age, and an adeno-carcinoma of the ileocæcal valve produced invagination of the lower portion of the ileum into the colon. The stenosis was partial and chronic; but when invagination occurred, the symptoms of obstruction became sufficiently urgent to justify a resort to laparotomy, which was performed in the median line. The seat of obstruction was readily found, and the invagination was corrected. Circular resection was performed, but the patient died on the following day of peritonitis. In the second case, a man fifty-two years of age, the symptoms of obstruction appeared suddenly. He recovered partially from this attack, and came under Czerny's care six weeks after the acute attack. A tumor, freely movable, was found close under the right costal arch. The diagnosis was narrowed down to either a floating kidney, with symptoms of strangulation, or intussusception produced by a tumor of the intestine, with the probability in favor of the latter. Abdominal section revealed the correctness of the latter supposition. The ileum had slipped into the colon, and had ascended as high as the right flexure of the colon. The invagination was reduced without difficulty. At the apex of the invaginated portion a carcinomatous tumor was found. The growth was excised with a broad, healthy strip of the intestinal wall, and the wound sutured. The patient was discharged on the twenty-eighth day, and presented himself four months later in excellent health. That the prognosis would be more favorable if the invagination is caused by a benign tumor of the intestinal wall, is apparent. If in such cases disinvagination is possible, an incision into the bowel will enable the surgeon to remove the tumor, either without or only with partial resection of the intestine, and the operation is finished by closing the wound with a Lembert's or Czerny-Lembert's suture.

2. *Enterolithiasis.* The subject of intestinal obstruction by an enterolithiasis has been prominently brought to the attention of the profession by Dr. Lange and Dr. Beam. Dr. Lange's patient was a woman sixty years of age, who had for a year suffered at times from colicky pains, which were attributed at the time to the passage of gall-stones. She was suddenly attacked with symptoms of acute intestinal obstruction; and when visited by him four days later, she was in a condition of collapse. As an operation offered the only possible chance of recovery, median laparotomy was performed. On opening the peritoneal cavity, a considerable quantity of turbid, flocculent serum escaped, and after the omentum had been lifted, the small intestine presented itself moderately distended and matted together by recent adhesions. Tracing the distended bowel, in a few seconds a hard lump was felt in the interior of the intestine, below which the bowel was entirely collapsed. It was evident that the obstruction was caused by this foreign body, which was removed through a longitudinal incision in the bowel. The intestinal wound was closed with a double row of sutures, and the abdominal incision united in the usual way. The patient died eight hours after the operation. The mass removed was sufficiently large to occupy the entire lumen of the intestine, and on section showed in its centre a crystalline round nucleus of cholesterin, about the size of a small walnut, around which, in concentric layers, was a brownish crust, varying in thickness from a fourth to one-half centimetre. The concretion had undoubtedly formed during the passage of the gall-stone.

An enterolith of similar size and structure has been recently shown me by Dr. Ira Manley of Markeson, Wis., which he removed from the lower portion of the small intestine of a woman who had suffered a long time from intestinal obstruction, which finally proved fatal.

In Dr. Beam's case the enterolith had become arrested in the ileum just above the ileocæcal valve, where it gave rise to acute obstruction. Laparoenterotomy was performed, and the patient recovered. The foreign body was as large as an English walnut, and contained a nucleus as large as a buckshot. As in most specimens heretofore examined, the nucleus of the enterolith was composed of a gall-stone. The previous history of gall-stone should be remembered in considering the nature of the cause of the obstruction, and when a probable diagnosis can be made an operation should not be delayed, as the foreign body may also give rise to perforation.

3. *Enterostenosis.* Non-malignant cicatricial stenosis of the intestine as a cause of intestinal obstruction, if circumscribed and not multiple, offers one of the most favorable conditions for operative interference. In cases of this kind the intestine on the proximal side of the stricture will be found enormously dilated, and this condition will greatly facilitate the detection of the seat of obstruction. Typical circular resection should be performed, as it is the only measure which promises a permanent recovery. Intestinal stenosis due to malignant disease calls for enterectomy or enterotomy, according to the extent of the disease, the condition of the adjacent organs, and the general condition of the patient.

4. *Internal strangulation.* The remaining causes of obstruction included under the common term internal strangulation, comprising volvulus, torsion, internal hernia, and strangulation by bands of cicatricial tissue, are the cases which have yielded such a large mortality after abdominal section simply because the operations were delayed for too long a time. These cases, when treated by timely interference, ought to furnish the most favorable conditions for abdominal section, as many post-mortem examinations have shown that a slight interference might have saved the patients' lives. The existence of intestinal obstruction, acute and chronic, is characterized by a familiar complexus of symptoms, so that the condition is readily recognized; but the location of the obstruction is frequently surrounded by many difficulties. As pain is not always referred to the seat of obstruction, it constitutes an unimportant symptom in localizing the lesion. Meteorism begins on the proximal side of the obstruction; consequently, when the obstruction is located below the sigmoid flexure it is first observed over the descending colon; when in the trans-

verse colon, over the ascending colon; and when in the small intestine, over the umbilical region. Vomiting of intestinal contents will take place early if the obstruction is located high up; if low down, it is a late symptom. True stercoraceous vomiting indicates that the obstruction is located somewhere in the large intestine. Careful palpation of the abdomen and, in doubtful cases, manual rectal exploration will constitute important aids in determining the location and nature of the obstructing cause.

Peritonitis is no contraindication to abdominal section, but the operation should be done, if possible, before this complication appears. If after a most thorough and careful examination, we are unable to ascertain the seat of the obstruction the abdomen should be opened in the median line for manual exploration. A dilated intestine would indicate that the cause of the obstruction is lower down, while a collapsed bowel can only be expected on the peripheral side of the obstruction. If the cause of the obstruction is not found by the usual methods of examination, a systematic search should be made for the ileocæcal region, and the intestine explored inch by inch, in both directions. When the patient is still in good condition, and the abdomen is sufficiently soft and yielding for making the examination, localization of the obstruction can usually be made without great difficulty. When opposite conditions are presented, when the patient is in a condition of collapse, and the abdomen tympanitic and tense, and the seat of the obstruction cannot be readily located, Nélaton's laparoenterotomy should be performed in the right iliac region, as affording the best chance for the relief of most urgent and dangerous symptoms. When gangrene of the bowel is found typical, circular resection should give way to the formation of a fecal fistula, if the obstruction is situated sufficiently low down, so that such a procedure will not interfere with the maintenance of nutrition should the patient recover from the operation.

Roser has made the observation that after correcting a volvulus at the sigmoid flexure the torsion of the bowel is liable to return. To prevent such an accident, he advises that the loop of intestine, when placed in proper position, should be stitched to the abdominal wall by passing a few sutures through the mesentery of the bowel and the parietal peritoneum of the left abdominal wall. After disinvagination, the same precaution is suggested to prevent reinvagination; the sutures in this instance must fix the lower portion of the intussusceptum.

The following concise and practical rules are laid down by J. Grey Smith, for treating intestinal obstruction by abdominal section:

1. Make the incision in the middle line below the umbilicus.

2. Fix upon the most dilated or the most congested part of the bowel that lies near the surface, and follow it with the finger as a guide to the seat of obstruction.

3. If this fail, draw the intestine out of the wound, carefully covering it, until increase of distention or congestion, or both, in one of the coils gives an indication that the stricture lies near.

4. If there be considerable distention of the intestines, evacuate their contents by incision and suture the wound. Never consider an operation for intestinal obstruction inside the abdomen finished until the bowels are relieved from overdistention.

5. Be expeditious, for such cases suffer seriously from shock. The whole operation ought to be concluded in half an hour.

ENTERECTOMY.

Circular resection of the intestine has been on trial for a number of years and has been performed for different pathological conditions. The results obtained thus far show that success depends largely upon the condition of the tissues through which the incisions are made. It may be stated, as a rule, that the healing process progresses most favorably when the resected ends have not undergone inflammatory changes by extension of the pathological conditions which have necessitated the operation. Thus, Jaffe has collected 121 cases of enterectomy, reported since 1876; of this number 36 were done for gangrene of the bowel, with 70 per cent. of deaths or formation of fecal fistula, while of the remaining cases done for intestinal wounds, artificial anus, stenosis, and tumors, only 44 per cent. terminated unfavorably. A study of these cases induced him to decide against the advisability of primary enterectomy for gangrene of the intestine. The same opinion is entertained by von Bergmann. The experience of Billroth also corroborates the opinion, which is now generally accepted, that primary typical enterectomy and enterorrhaphy should not be performed in cases of strangulated hernia and internal strangulation. Of six cases of enterectomy for gangrene operated upon by Billroth, only one recovered, and in this case a fecal fistula formed which, however, closed without further interference in three weeks. In contrast with these cases were five enterectomies combined with extirpation of tumors affecting the bowel primarily or by extension, of this number three recovered.

Clinical experience appears to have definitely settled the course to pursue in cases of gangrene of the bowel, viz., to resort to circular resection and suturing after the intestine has been restored to its normal condition. That resection of a large portion of the intestinal canal is not always compatible with health is well illustrated by a case, reported by Baum, in which he removed 137 cm. of the small intestine in a woman forty years of age. The patient was suffering from strangulated femoral hernia. Taxis was only partially successful. On opening the sac an offensive fluid escaped, and a portion of the omentum was removed. Peritonitis followed and a swelling formed in the abdomen above the crural ring, which broke, and a fecal fistula was established. Rapid emaciation ensued; symptoms of strangulation made a laparotomy necessary. A mass of intestine was found twisted into a bunch which could not be unravelled, and as it was surrounded by an abscess it was resected and the ends of the intestine were united with sutures. Patient recovered from operation and improved for several weeks. Six months later progressive emaciation resulted in death. At the autopsy the seat of resection could not be found, showing how completely and perfectly the intestinal wound had healed. The reporter was of the opinion that death was caused by the great shortening of the intestinal tract. In 1881, Koeberle resected 205 cm. of the small intestine in a girl twenty-two years of age on account

of multiple stenoses of the bowel. The patient made a favorable recovery. Kocher has quite recently removed by resection 160 cm. of small intestine for gangrene in a case of strangulated hernia. The patient recovered, and at the time the report was made, remained in good health.

Notwithstanding the favorable results obtained by Koeberle and Kocher, Baum's case should indicate to us that there must be a limit to the extent with which resection can be practised with immunity, and that in multiple lesions of the intestine with intervening healthy portions of the bowel, it would be preferable to make multiple resections rather than to include a too extensive tract of healthy intestine with the injured or diseased portions. Nearly all operators emphasize the importance of not interfering unnecessarily with the vascular supply of the bowel for fear of causing gangrene of the resected ends. Lauenstein is so strongly convinced of the importance of this precaution that he claims the portion of intestine deprived of its mesentery always becomes gangrenous; consequently, in such cases he advises resection of that portion of the intestine, rather than trust to the doubtful restoration of the vascular supply by collateral circulation. That it is important to interfere as little as possible with the blood supply of the resected ends of the bowel no one will doubt, but that in the case of the small intestine this fear has been overestimated, I am convinced. During my experiments on the pancreas last year, I often detached the mesentery from the duodenum and upper portion of jejunum in dogs and cats to the extent of from two to twelve inches, and yet gangrene of the bowel occurred only in exceptional cases. The vascular supply was restored either by the denuded surface of the bowel coming in contact and forming adhesions, the detached portion of the intestine assuming the shape of a shoe, the open portion corresponding to the cicatrix between the denuded surfaces, or the circulation was restored by the growth of new vessels of large size along the detached portion of the bowel, thus restoring to perfection the mesenteric circulation. The apprehension of causing gangrene by even a slight interruption of the circulation appears to be well founded in resection of the large intestine. Czerny lost two cases of resection of the colon from gangrene produced by this cause. Lauenstein has found three similar cases recorded in which, during operations on the stomach, the transverse colon was detached more or less from the mesocolon. We should, *à priori*, expect a greater liability of gangrene to occur from a limited interruption of the circulation in operations upon the large intestine from the larger size of the tube, the more scanty blood supply, and more particularly from the greater difficulties encountered in the formation of the collateral circulation.

Appended to the report of a successful case of resection of the large intestine for malignant disease, Weir gives the statistics of 35 cases in which excision of a cancerous intestine was resorted to, and in all save one (Schede's) the disease had involved the large intestine. Of this number, it is to be noted that of the five cases in which the operation was done during the exhaustion attendant upon the acute obstruction of the bowel, all died from the shock of the operation, hence this condition is considered by Schede to contraindicate the operation. Of these 33 cases, there was a mortality of 17, or 51.5 per cent., only a little greater than that which results from resection of the large intestine from other causes and which is given by Maydl at 50 per cent. Aside from the shock, 10 died within forty-eight hours; in a number of cases the progress was complicated by perforative peritonitis and intestinal fistula. When the latter occurred in the course of an otherwise favorably progressing case, it, as a rule, closed later spontaneously. The perforation was due either to faulty suturing or gangrene of the margin of the wound from detachment of the mesocolon. In cases in which the disease returned, it took place in 3 cases in less than one year, in 4 others between one and two years, in 1 case in over two years, and in Gussenbauer-Martini's case the patient was free from disease four years after the operation.

The propriety of excision of the colon for malignant disease can, therefore, not be questioned; the more so if it is found, on exploration, that the diseased tissue cannot be removed, an artificial anus can be established at once with or without excision, which will at any rate remove the symptoms due to obstruction. In two of Billroth's cases in which the cancer affected the descending colon in one instance, and the sigmoid flexure in the other, so much of the bowel was removed that the ends could not be united; an artificial anus was established, but in both instances a fatal termination followed, in one from collapse, and in the other from septic peritonitis.

(*To be continued.*)

THE UNION OF NERVES OF DIFFERENT FUNCTION CONSIDERED IN ITS PHYSIOLOGICAL AND SURGICAL RELATIONS.

The Annual Address of the President of The American Surgical Association, *Read April 28, 1886.*

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Fellows of the American Surgical Association: Custom, if not organic law, requires the President to open the proceedings of the various annual medical conventions by an address of a more or less formal character. Custom, too, in all similar bodies, generally requires this officer to select the subject which he proposes to consider; and thus there has naturally resulted an indulgence in a wide range of thought, from matters of simple history to abstruse disquisition.

My immediate predecessor, in his address one year since, suggested that, in this Association, a *résumé* of the progress of surgery for the previous years, or some especial scientific subject, should, in the future, constitute the subject-matter of the President's Address. Although the Association did not formulate and enact this suggestion as an amendment to our By-Laws, I propose to comply with its spirit, and shall present a few thoughts on certain points in the physiology and surgery of motor, sensory, and moto-sensory or mixed nerves.

Previous to the investigations of Magendie and Bell, no clearly defined efforts had been made to differentiate the motor and sensory nerves. It is true that Walker had, some years previously, asserted this difference and had announced the fact of a difference between the

roots of the spinal nerves, but had erroneously attributed motor properties to the posterior roots. It remained for Magendie, followed and supported by Bell, to establish clearly the fact of the motor qualities of the anterior, and the sensory qualities of the posterior roots. With the establishment of this truth, expressed, as it was, in language which emphasized the different qualities in the nerve trunks, there was born, also, the idea that the difference was intrinsic; a property appertaining to the nerve tubules and fibrillæ themselves. In other words, that a motor nerve was possessed of motor qualities by virtue of its anatomical and physiological organization; and that for identical reasons a sensory nerve was endowed with sensory qualities. No anatomical or histological difference between the motor and sensory tubules and fibrillæ was discovered, nor, so far as I am aware, sought for; and, certainly, the subtlety of nerve force itself was not calculated to encourage an attempt at differentiation in that respect. Still, the idea has generally, I think universally, prevailed that the difference between motor and sensory nerves was intrinsic, and depended on a peculiarity of the nerve itself; certainly the language generally used by writers and speakers conveys this idea. Is this the fact? or is the difference to be found in extrinsic conditions, viz., the anatomical organization at either end of the nerve? Is there a real difference in the nerve itself, such as enables a motor nerve to transmit only an order from the brain, or an influence from some other nervous centre to a muscle, and a sensory nerve to transmit only an impression received at its periphery to the brain or some minor nervous centre? Is an afferent nerve a nerve of that quality, and is an efferent nerve possessed of its efferent qualities intrinsically, or, so to speak, accidentally? Or, is the nerve trunk simply a conductor of a form of force, the effect of which depends entirely upon the machinery at either end of the nerve?

Upon the facts in the case which these questions seek to evolve, depends the possibility of satisfactory results in the section and physiological reunion of divided compound nerves, and the grafting of one compound nerve upon another where there has been so great a loss of the trunk of a nerve as not to permit the approximation of the distal to the proximal portion of that nerve. Success in achieving satisfactory results by such operations, or a uniform lack of success, must afford, likewise, a tolerably reliable answer to these interrogatories—much more reliable than experiments upon some of the inferior animals, especially dogs, cats, rabbits, etc.

As to the literature of this particular branch of the subject, I have not been enabled to make an investigation. I remember, however, that thirty years since, Prof. J. Adams Allen, in an article which he contributed to the *Medical Independent*, published in Detroit, relative to Prof. H. F. Campbell's announcement of the excito-secretor function of the nervous system, used the following language:

"The effect is motory if contractile fibre be present. The effect is secretory if secreting organs be supplied. The effect is sensation if sensitive neurine be reached."

In the same article he further says:

"Heat will melt iron, explode gunpowder, harden clay, and destroy or fix colors. Are these several results indicative of any diversity in the force of heat itself? Are they not, rather, indicative merely of variety in the bodies acted upon? So it is with the excitor force which commands the tiny fibrillæ and cells in the nervous arc. They receive and transmit but the *single impulse*—and in a *single* manner. *The effect produced, then, depends upon the structure and condition* of the organ reached. . . We might with equal propriety speak of a modification in the essence of the galvanic current, when at one time, by ingenious mechanism, it is caused to print a telegram, and at another to decompose a mineral, at another to kindle a Drummond light."

Professor Allen was writing on the general subject of nervous action, including the sympathetic with the cerebro-spinal system, and the following paragraph, although written with reference to a wide consideration of nervous action, is not without significance in the more limited view in which I am indulging in reference to motor and sensory functions. He says:

"It is, perhaps, safe to assume as probable that parts supplied with cerebro-spinal nerves exhibit more definiteness in their reflex phenomena than those supplied mainly by fibres from the ganglionic chain. But it remains to be proved that there is any more real difference between these two classes of nerve fibres than exists between striated and non-striated muscular fibres."

It is only in logical harmony with the whole of the paper, of which this is a quotation, to understand the expression in the last sentence "than exists between" as meaning *than depends upon* "striated and non-striated muscular fibres."

These generalizations are fully supported by anatomical structure, there being no anatomical difference discernible to distinguish a motor from a sensory nerve, except that which is found in its origin and at its final distribution.

The questions which interest the practical surgeon are these: Is the difference between motor and sensory nerve tubules and fibrillæ intrinsic—*i. e.*, anatomical; or does the difference depend simply and alone upon the physiological machinery at the ends of the nerves? And, is there a difference in nerve force itself?

In answer to these questions, we may appeal to experiments upon inferior animals, and to the results of surgical operations on man. Experiments on inferior animals, though of value, require severe scrutiny, or they may mislead; the nervous system of some animals tolerating lesions which would be destructive of function in man.

Reference will be made in this paper only to experiments which seem to yield positive, rather than negative evidence; and as some of the positive evidence which I shall offer completely invalidates some, at least, of the experiments, I shall not, I hope, be deemed illogical or prejudiced.

Philipeau and Vulpian divided, in dogs, the pneumogastric and sublingual nerves and united the central end of the pneumogastric with the distal or peripheral end of the sublingual. They, also, divided the lingual branch of the fifth nerve and the sublingual, uniting the central end of the lingual branch of the fifth with the peripheral end of the sublingual, tearing out at the same time the central end of the sublingual. Subsequent observation of, and experiment on, these cases showed that irritation, both of the trophic and special

sense nerve, aroused muscular action in the muscles to which the sublingual is distributed; and that pinching the sublingual elicited expressions of pain, thus showing that a conductor composed of a special sensory and a motor nerve, or of a trophic and a motor nerve, united end to end, transmitted nerve force in both directions, the effect being that which is normal in the organ reached, viz., motion in the muscle and perception of impression, or sensation, when the force reached and impressed the brain. Nerve force travelled in both directions over the *new routes* established by the united trophic and motor nerves, and also by special sense and motor nerves, the effect being determined by the machinery at either end of the route.

Doctor Rawa,[1] of Kiew, has made numerous experiments on rabbits, cats, dogs, pigs, and goats, uniting in some instances the central end of one compound nerve with the peripheral end of another compound nerve having a different destination; in other instances, the central end of a sensory, with the peripheral end of a motor nerve, and *vice versâ*. In these experiments he has not united the nerve trunks by abutting them end to end, but he has lapped them, or turned them up on one another and bound them lightly together, instead of suturing them. The results of his experiments he sums up as follows:

"*a*. The central nerve apparatus is enabled to innervate organs which do not belong to it, as soon as those organs are artificially brought in nervous connection with it.

"*b*. The central nerve apparatus is the chief nourishing agency (Haupternährungsherde) for the peripheral end.

"*c*. For the reëstablishment of function in the peripheral end of a divided nerve, which has been united to the central end of any other nerve, time is required, which varies from six to sixteen months."

In regard to statement *b*, viz., that the central end is the chief nourishing agency for the peripheral end, there may be a question as to the entire correctness of the assertion. The distal end of a divided and ununited nerve certainly atrophies; but it may be a question whether this change is primary or secondary. A muscle deprived of nervous supply will atrophy; but the atrophy is probably the direct consequence of disuse, and thus secondary, for, a muscle with full nervous supply, if disused, undergoes the same change, and here the change is, unquestionably, the consequence of inaction. In the divided nerve the same conditions obtain, and it is probable that the atrophy is, as in the muscle, the consequence of disuse. Nutrition in a nerve is not, probably, greatly different from nutrition in other succulent tissue, and it is not philosophical to suppose that, as an atrophied nerve becomes restored, it is restored by proliferative outgrowth from the proximal, along the tubules of the atrophied distal portion. Such a method of restoration certainly does not obtain elsewhere in the higher animal organizations.

These experiments of Dr. Rawa were made during the three years preceding July, 1883.

In April, 1880, Dr. E. P. Davis, then an assistant in the physiological laboratory of Rush Medical College, made for me, at my suggestion, the following experimental operation, a report of which I here give in his own words:

"A black and tan dog, weighing about ten pounds, was anæsthetized, and under careful antiseptic precautions the following experiment was made. The axillary plexus was exposed at his lower half. The median nerve was then severed after its bifurcation,[1] and also the ulnar and radial. The outer head of the median nerve was united to the ulnar, proximal to distal extremity, by a single fine catgut suture. The ends were carefully brought into apposition without tension. The inner head of the median and the radial were then united in the same way. The limb was brought to the dog's side, a plaster-of-Paris bandage was put about the thorax, confining the limb; the immediate dressing of the wound was antiseptic. The animal was slung in a box for ten days. At the expiration of this time the plaster was removed, and the wound found healed by first intention. Complete paralysis of motion and sensation was present. In somewhat less than four weeks this began to disappear, and when the animal was subsequently subjected to examination by Professors Gunn and Allen, and a perfect condition of nervous impulses of motion and sensation was observed, full muscular power and nutrition existed."

In this experimental operation it will be observed that all the main trunks of the axillary plexus were divided, and that in uniting the heads of the median with the radial and ulnar nerves, the whole nervous supply was left to come through the two heads of the median to the radial and ulnar, and that the distal portion of the median was left entirely without nervous supply; and yet when the radial and ulnar connections with the central heads of the median became established, there was no paralysis, even in the muscles or integument supplied by the median. The explanation of this fact is reached through another experiment to which I shall presently call attention. The paralysis was complete, both as to motion and sensation, for more than four weeks after the severing of the nerves; and when restoration of nervous currents through the central median heads and the peripheral radial and ulnar ends took place, all paralysis completely disappeared, even in the parts supplied by the median which had no *direct* communication with the brain; the dog, accompanying Dr. Davis on one occasion on a walk of several miles, behaving as lively dogs are wont to do under such circumstances, and apparently without fatigue. It seems to me, that this experiment was a crucial one, and that, so far as dog physiology is concerned, its evidence is entirely conclusive.

During the summer and autumn of 1885, Dr. H. W. Sheldon, first interne of the Presbyterian Hospital of Chicago, made, at my request, a series of operations on dogs, which involved the removal of a section of the ulnar nerve and the grafting of the peripheral end upon the side of the intact median. These operations were generally successful and *apparently* indicated that, through the engrafted connection, the parts supplied by the ulnar received their innervation. But another experiment, suggested and made by Dr. Sheldon himself, destroyed completely their value. He simply removed

[1] Centralblatt für die medicinischen Wissenschaften, No. 34, 1883.

[1] The Doctor is evidently viewing the nerve from a distal position.

a section of an inch or more of the ulnar trunk, and as soon as the wound was healed and the animal was relieved of the confinement incident to the dressings, it was observed that motion and sensation in the parts supplied by the ulnar were in no wise impaired. In this experiment the parts normally supplied by the ulnar were left completely without *direct* nervous supply, as were also the parts normally supplied by the median in Dr. Davis's operation; and yet there was no paralysis in these parts, sensation and motion being perfect in all portions of the forearm and paw. Whence, then, the innervation? The investigations of Arloing and Tripier, cited by Markoe in the September number of the *Annals of Surgery*, show that in the dog, as well as in several other inferior animals, "there are certain tubules which pass from one nerve to another in a continuous or in a reverse direction, to be lost on the nerve to which they have attached themselves at a varying distance on the adopted trunk. . . . . The most abundant anastamosis, however, is found near the peripheral termination of the nerves, where all the terminal twigs unite to form the network of final distribution." Thus there is furnished an *indirect* and *retrograde* route for the conduction of nervous force; and thus is explained what was observed in the two experiments of Drs. Davis and Sheldon described above, where the areas deprived of *direct* innervation were fully supplied by and through a *recurrent* and *indirect* route. In the experiment made by Dr. Davis, the route between the brain and the paw and muscles of the forearm was through the inner and posterior cords of the axillary plexus, the outer cord serving only as a route between the brain and the areas supplied by the musculo-cutaneous nerve. Thus we see that—at least in the dog, where there is a free peripheral anastomosis—the exsection of a single nerve trunk is not attended by marked loss of sensation or motion.

Nerve suture in man has become a recognized operation, both as a primary and a secondary procedure; and its results, as well as experimental operations on inferior animals, may be advantageously invoked for light upon Professor Allen's generalization, viz., that the difference in function of motor and sensory nerves depends entirely and solely upon the organization at either end of the nerve. Let us consider, for example, such a case of nerve suture. It is not probable that the adjustment is ever absolutely perfect, so that the so-called sensory tubules and fibrillæ in the distal portion are brought in contact with corresponding elements in the proximal portion, and that the motor filaments are brought into like harmonious conjunction. In reply to this proposition, it may be said that Nature, in the proliferative process of repair, possesses elective powers. While this may be quite true, it is not proven, nor will it be susceptible of proof until we can individualize the sensory and motor elements of a nerve. It may be remarked, too, that in the experiments of Rawa, where he laid the nerve trunks to be united, side by side, instead of end to end, this invoked elective power is subjected to a most trying test—a test that challenges our utmost faith in behalf of Nature's resources.

But if we concede this elective power in Nature's reparative efforts to unite the ends of severed compound nerves, how shall we dispose of the experiments of Rawa, who crossed and united the severed pneumogastric and sublingual nerves, and restored functions, respectively, to the parts supplied by each? Such results prove conclusively that the motor, sensory, and trophic powers of nerves depend, not on the nerve itself, nor on a difference of nerve force, but on the organism at the ends of the nerve.

Confusion of muscular action may well be anticipated after crossing and uniting nerves supplying antagonistic sets of muscles, but, even here, time and continually repeated efforts may be relied upon to bring order out of confusion. Professor Stephani is reported, in the November number of the *Deutsche medizinal Zeitung*, to have succeeded four times in six experiments in uniting the distal end of the median with the proximal end of the musculo-spiral, and the distal end of the latter with the central end of the former. Following immediately on the operation were complete paralysis and atrophy; but gradually in the course of six to eight months there was not only restoration of muscular power, but harmony of action was also realized to a sufficient extent to enable the animals to run, but perfect extending power of the paw was not realized. The summary of Stephani's experiments, as reported in the periodical above referred to, makes no allusion to the function of sensation in the skin areas supplied by the nerves operated on, but it is presumable that in this respect there was restored function.

Nerve suture as a practical surgical operation, I have already observed, seems to be fairly established, both as a primary and secondary procedure. A primary will probably yield earlier results than a secondary operation. The distal portion not having undergone atrophy, will not require the time to regain lost nutrition and suspended function, which will be necessary in the case of a nerve in which atrophy has already taken place.

The intergrafting of a section of a nerve of an inferior animal, to replace extensive loss of a nerve trunk, probably, will be of too uncertain success to constitute it a standard operation. But can the grafting of the distal end of a nerve, in such a case, upon the side of, or into the trunk of an adjacent nerve secure to it a supply of nerve force? Rawa's results in his experiments of uniting nerves by side contact, would indicate a possible affirmative answer. It was with the view of determining this point that I suggested the experiments made by Dr. Sheldon last summer and autumn. But we have seen that, unless we divide all the nerves as was the case in Dr. Davis's operation, these experiments in dogs are valueless, the free distal anastomosis affording a retrograde route for nervous force. We must look, then, for the solution of this question, to the comparatively rare opportunities afforded in the course of surgical practice, to institute experimental operations in man. Such opportunities may be encountered in cases of accidental injuries causing extensive loss of nerve structure, or where, for the removal of a large neuroma, similar nerve sacrifice is required. In the fifth number of the *Gazette Hebdomadaire*, 1876, there is reported a case occurring in the service of M. Després, at the Cochin hospital where there occurred such an extensive destruction of the median nerve as to preclude the possibility of approximating the ends. He, therefore, determined to ingraft the distal end of the median with the trunk of the ulnar. Separating the filaments of the ulnar trunk he interwove the separated or fringed filaments of the

distal median, thus accomplishing what he terms, "*suture par rapprochment et par intrication.*"

Fifty-four days after the operation the patient left for Vincennes with partially restored functions in the parts supplied by the median nerve.[1] Such restoration, though only partial at so early a date, certainly gave promise of further improvement; and would warrant further operative procedure in the direction of nerve grafting.

I have already stated that one of the ends in view, in the graftings made for me by Dr. Sheldon, was to determine the value of grafting a divided nerve upon the trunk of an adjacent nerve. I was at that time uninformed of Després's operation, an account of which I have just epitomized; indeed, it was not until I had made the operation on a patient who required extensive exsection of the ulnar nerve, that my attention was called to this case. Consequently, at the time of the operation I was not aware that I had a precedent for it.

On the 1st of December, 1885, I had occasion to resect between three and four inches of the right ulnar nerve for the removal of a neuroma in a male patient, thirty-six years of age. Having anxiously awaited an opportunity to make such an experimental operation, I proceeded at once to graft the distal portion of the divided nerve upon the trunk of the median. Desiring to avoid any injury to the latter nerve, and encouraged by the successes of Rawa in uniting and restoring function by side contact, I denuded the trunk of the median of its sheath, so that I was enabled to lay the broadly chamfered distal end of the ulnar upon the denuded side of the median, to which it was fastened by three fine catgut sutures. The operation, dressings, and treatment of the wound were successfully conducted in reference to asepsis of the wound. Healing was without suppuration, but was not absolutely complete till the eighteenth day. Immediately after the operation there was complete paralysis of motion and sensation in the parts supplied by the ulnar. On the eighteenth day a careful examination showed a slight return of sensation along the ulnar side of the ring finger. In flexing the hand upon the wrist, there seemed to be contraction in the flexor carpi ulnaris; but in the attempt to flex the fingers, there was no response in the terminal phalanges of the ring and little fingers.

March 3, three months after operation: There is marked increase of sensation on the uinar side of ring finger; no sensation in little finger. No increase in range of motive power; a little more vigor, perhaps, in the action of the flexor carpi ulnaris, as shown by evenness of the flexion, the hand not deviating to the radial side in such action. There is still inability to flex the terminal phalanx of ring and little fingers.

April 8, four months after operation: Patient now feels a very light touch on the ulnar side of ring finger; no sensation to touch in little finger, but there is a feeling of warmth in it; whereas heretofore it has felt, and has been, cold. There is increased muscular power; the patient can now adduct the hand with considerable vigor, but as yet has no power over the terminal phalanges.

The positive evidence which these two cases of nerve grafting furnish at so early dates not only warrants further effort in this direction, but also corroborates the other evidences of the correctness of the postulate, that the function of a given nerve depends entirely upon the machinery at its ends, and not upon any intrinsic quality.

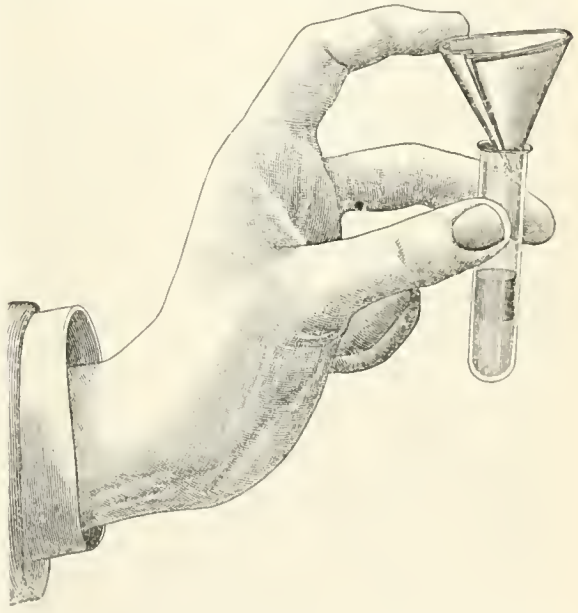
[1] Ce malade part pour Vincennes le 13 (Sept.). A ce moment, le contractions du grand palmaire sont assex efficaces pour relever le main; l'opposant du pouce a pris un peu d'énergie, mais le fléchisseur propre de ce doigt ne transmet aucun mouvement; les tendons des fléchisseurs superficiéls des doigts de la main agissent bein; seul les tendons des fléchisseurs profond, de l'index, et surtout du medius sont faible; la troisième phalange n'est que très incompletément fléchie, surtout celle de l'index. L'insensibilité persiste toujours au niveau des deux dernière phalanges de l'index et du medius.

ORIGINAL ARTICLES.

A NEAT METHOD OF PERFORMING HELLER'S ALBUMEN TEST.

By THOMAS S. K. MORTON, M.D.,
RESIDENT PHYSICIAN, PENNSYLVANIA HOSPITAL.

As it is acknowledged that the best and most satisfactory test for albumen in urine is that which depends upon the precipitation of a ring of albumen at the line of junction between the precipitating fluid and the urine poured on top, it may be asked: What are the necessary conditions for the most delicate performance of this test (Heller's)?



These are: a small amount of nitric acid in the bottom of a test-tube, and the gradual addition of perfectly clear urine on top of the acid, care being taken that this be so gently done that the two fluids do not mix.

After enduring a great deal of discomfort from the usual methods of applying this test, I have come to the use of the following method exclusively:

In the first place, take a very small test-tube—for the smaller the tube the smaller will be the meniscus at the junction of the liquids, and which of itself will obscure small amounts of albumen in a large tube—one about 2½ inches long and ⅓ inch in caliber is

the best size. Next fill the tube one third with nitric acid. Finally, but most important—according to the transparency of the urine—fold one or more 3 to 3½ inch diameter filter papers twice, thus making a funnel, and insert its point into the mouth of the test tube, supporting it by the forefinger of the hand holding the tube (see cut). Then pour into the funnel about a drachm of the suspected urine; it will slowly filter through the paper, and no matter how cloudy before, will run down perfectly clear upon the acid, and, should albumen be present, show it as a sharp-cut white ring at the junction of the two liquids. By this simple procedure, not only are the above conditions most perfectly fulfilled, but much smaller percentages of albumen can be demonstrated, and in a much more satisfactory manner, than by any other method of using this test.

MEDICAL PROGRESS.

A Remedy for Coryza.—Rabow has repeatedly seen benefit from the following powders, used like ordinary tobacco snuff, which also they resemble in appearance: 1. Menthol, 2 parts; roasted coffee, 50 parts; white sugar, 50 parts; mix, and take as snuff. 2. Cocaine hydrochlorate, 1 part; roasted coffee and white sugar, of each 50 parts; mix, and use as before.—*Dublin Journal of Medical Science*, April, 1886.

On the Influence of the Various Constituents of the Feces upon the Motion of the Intestines. —With the view of elucidating the question here indicated, Bokai has injected 1 c.cm. of a warm one per cent. solution of certain acids, or, in other words, 1 centigramme of each acid, into various parts of the intestines of rabbits, with the following results: (1) Lactic acid caused a very slight peristalsis for three or four minutes. (2) Succinic acid caused more movement, especially of the jejunum and rectum, the cæcum and colon being less affected. Slight tonic contraction and anæmia of the parts were also observed. (3) Valerianic and butyric acids caused marked and persistent hyperæmia, and movement in the jejunum and rectum. (4) Formic acid caused peristalsis, with dilatation of the vessels. (5) Propionic acid dilated the vessels, and caused vigorous movements which did not last long on account of the spasm set up. (6) Acetic acid quickly caused a vigorous contraction of the ileum, but the rectum only responded to a larger quantity, viz., 10 centigrammes. The vessels were first contracted and then dilated. (7) Caproic and caprylic acids acted the most vigorously of all, and in a few seconds caused tonic contractions with extreme hyperæmia. They had the most influence on the colon.

The acids are arranged in order according to their influence on the muscles of the intestine. Lactic acid has no influence on the vessels; acetic and succinic acids cause them to contract; while the rest cause them to dilate. The acids have most influence on the jejunum and rectum, less on the ileum, and least of all on the colon.

Injection of a larger quantity of these acids was followed by vomiting and diarrhœa. In large doses they cause catarrh and inflammation of the intestinal canal. Hence the conclusion that these acids in normal digestion act as the stimuli of peristalsis, and when developed in larger quantity they produce a more vigorous action and ultimately diarrhœa.—*Manchester Medical Chronicle*, April, 1886.

Antipyretic Action of Morphine. — Lauder Brunton and Theodore Cash, in a brief note in the *Centralblatt für die medicinische Wissenschaften* for April 3, 1886, record their observations on the effect of morphine upon various classes of animals. Starting from the remarkable observation made many years ago by Weir Mitchell, that morphine exerts but a relatively slight narcotic effect upon birds, they have found that when this drug is administered to members of the group in question, a very marked fall of temperature results, in many cases to the extent of several degrees Centigrade. The decomposition products of morphine show that it belongs to the aromatic series of chemical substances, and it is interesting to find that this drug exerts upon birds the same antipyretic effects which other members of the series produce on mammals. Rückert has shown that morphine also depresses temperature in dogs and rabbits.

Shoulder-joint Friction and Incipient Phthisis. —Dr. Angel Money writes as follows to *The British Medical Journal* o April 24, 1886.

My object in this brief communication is to draw attention to a certain physical sign that not unfrequently leads to error. As the first physical sign of incipient phthisis is frequently a mere adventitious sound heard over some part of the apex o the lung, and as the friction produced in the shoulder-joint, by breathing, often imitates very closely these pulmonary adventitious sounds, it is not difficult to understand how mistakes in diagnosis should occur.

I think that there are good grounds for believing that lives are sometimes rejected at insurance offices from a want of knowledge on this point.

The sound produced at the shoulder-joint is almost always of a dry quality, rather creaking than crepitation; but its character varies considerably. It is difficult to prevent its occurrence in those subjects in whom it is heard; so that fixing the joint hardly aids one much in the diagnosis. But the sound is always loudest over the joint itself, and is better conducted along the bones than along the muscles, over which it is usually faintly heard; but in some instances it may even be audible over the pectoralis major below the clavicle. An important point in the diagnosis is the character of the breath-sound at the apex of the lung; when mere joint-friction is heard, there is of course no prolongation or increased loudness of the expiration. The friction-sound, simulating pulmonary adventitious sounds, was first pointed out to me, and, so far as is known, was first drawn attention to, by Dr. Gowers, in his class of clinical medicine at University College. It is of frequent occurrence, and especially, I think, in patients who have suffered from "rheumatism." I have not heard it often in children, and less often in women than in men. There can be no doubt that the practical physician must have become acquainted with the sound, even though he may not have formulated his opinion thereon. If this note should lead to its wider recognition, my end will have been answered.

THE MEDICAL NEWS.

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OF MEDICAL SCIENCE.

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SATURDAY, MAY 8, 1886.

OPERATION FOR INTRACRANIAL HEMORRHAGE.

IN THE MEDICAL NEWS of last year we published several editorials on the subject of surgical operations upon the cranium, among them one in the number for December 26th, on "The Treatment of Intracranial Hemorrhage." The importance of the subject seems to justify our recurring to it again, especially in view of the fact that we see from time to time, in the medical journals, accounts of cases which indicate that the opinions which we have already expressed are not so generally accepted or adopted as we might hope. Thus, in the *Boston Medical and Surgical Journal* for April 1, 1886, are two reports which have attracted our attention. In one of these, DR. ATHERTON P. MASON tells of a man who received, in a manner unknown, a contused wound on the left parietal boss, with a depressed fracture of the skull. As the symptoms did not appear to be urgent, the wound was dressed, and the patient went off and worked for a week, when he suddenly lost consciousness, and fell in his room. When seen he had a hard pulse of 100, a temperature of 101°, and slow, stertorous respiration. The wound was now opened and some fragments of bone were removed, among them two spiculæ which had penetrated the dura mater and entered the brain. When these were removed, pus welled up from beneath the dura mater and considerable arterial hemorrhage followed. This was controlled by gentle pressure with a sponge, and the wound was dressed antiseptically. In two days the pulse had fallen to 80, and the temperature was normal. Paralysis and aphasia, which were present, increased for about a week, and then gradually disappeared in the course of a month. In a month and a half after the injury the patient was well.

If our understanding of this case is correct, we think that no appearance of safety should have led to the omission of trephining when the patient was first seen, unless he absolutely refused to have it done. Afterward, the operation was a sequence of the plain indications of the case, which at this point is chiefly interesting as a study in diagnosis, and in the interpretation of the phenomena present. The points to which we would especially call attention are those of the tense pulse, and the rise in temperature. As we have before pointed out, these are early symptoms of increased intracranial pressure (see MEDICAL NEWS, Nov. 14, 1885), the first effect of which is to irritate the vagus and vasomotor nerve centres, leading to a slow and tense pulse, and to slow and labored respiration. In this case the pulse was more rapid than is normal. This may be explained by the influence of the pus, which had set up febrile hastening of the pulse, and which was only partly counteracted by the influence just mentioned. The rise of temperature ought also to be attributed to the same cause, although this is often an early symptom of increased intracranial pressure. From this, it will be seen that it is not easy to be sure that the loss of consciousness in this patient was due to a sudden rupture of a meningeal vessel, although we think this to be the most reasonable explanation of all the symptoms.

Passing from this case, we find another, in the same number of the same journal, reported by DR. W. D. BIDWELL. A man was thrice struck on the head by a companion with his fist, on one finger of which was a large seal ring; but he was able to ride home, and to put up his horse. At the end of an hour he complained of being dizzy, and lay down, and four hours after was found to be unconscious, with a temperature of 101°. Twenty-four hours after the injury was received his pulse was 80, his temperature was 102°, his respirations were 40, his breathing was stertorous, his left pupil was dilated, both pupils were insensitive to light, and he had some rigidity of the muscles of the extremities, and free perspiration. In four hours his temperature rose to 102.8°, and his pulse to 92. The reporter here says: "A diagnosis of compression of the brain from hemorrhage had been made, but the external marks of violence were so slight that the brain injury could not be localized, and it was deemed advisable not to resort to operative measures." Two hours afterward the patient died. In the previous account we find it noted that, in addition to marks which did not seem to point to injury of the skull, there was an abrasion of the left ear and a contusion, which might have been made by the stone of the finger-ring, above and behind the left ear. At the autopsy

there was found a fracture of the temporal bone above the left external auditory meatus, which could only be detected on the inside. A sharp fragment of the fractured bone had divided the middle meningeal artery, and a firm clot, four inches long and three and a half inches wide, was found between the bone and the dura mater. There was, also, a bag of serum at the posterior end of the clot, containing about an ounce of fluid.

Here was a case in which all the symptoms pointed to an intracranial hemorrhage, and in which there was the mark of a blow in the course of the vessel which is the most frequent source of such hemorrhages, and yet the reporter considered it inadvisable to operate.

Now, as we have before pointed out, hesitation to operate when there is so strong a probability of the rupture of a meningeal artery falls short of the measure of efficiency which is possible to a surgeon at the present day. We need not repeat what we urged in this connection last December, but it may be worth while to call attention to two new papers which confirm what we then said. One of these papers is by CECCHERELLI ("La trepanazione del cranio in rapporto alle sue indicazioni," *Annali univers. di med. e. chir.*, April–June, 1885). It is a statistical study, and contains a strong recommendation to operate immediately and thoroughly in cases of intracranial hemorrhage and of abscess. The second is a paper of the greatest value by KRÖNLEIN ("Uber die Trepanation bei Blutungen aus der A. meningea media und geschlossener Schädelkapsel," *Deutsche Zeitschrift f. Chir.*, Bd. xxiii. Hefte 3 and 4, 1886). It will be remembered that it was Krönlein who suggested and supervised the work of Wiesmann, to which we have before referred. In the present paper he goes a step further in practical suggestions than the previously gathered facts had warranted. In addition to advising opening the skull for the purpose of evacuating a clot, or of stopping a hemorrhage, Krönlein now insists that a second opening shall be made when the first has not revealed the seat of the mischief. He further assigns the very spot in which such a second opening should be made. In the past three years Krönlein has four times trephined for rupture of the middle meningeal artery. In all the cases the diagnosis was correct. Twice he found and removed the extravasation, and the patients recovered. Twice he failed to find it, and the patients died. His own experience and a careful study of the subject have led him to the conclusion that, thanks to modern antiseptic methods, one need have no concern as to the issue after the removal of a hæmatoma within the skull, unless some complication unconnected with the operation should arise.

As to the points to be selected for the application of the trephine, Krönlein gives some valuable suggestions. In the first place, he has made a study of the usual size, shape, and seat of accumulations of blood from ruptures of the middle meningeal artery. We cannot spare space to repeat his argument; but we may state that it appears that by far the greatest number of such accumulations will be reached by an opening made in a horizontal line drawn around the skull at the level of the upper rim of the orbit, and at a point about an inch behind the external angular process of the frontal bone. But, what is most striking in Krönlein's paper, is the recommendation to follow an opening made at this point, when it has not revealed the extravasation, by another one, made in the same line and just below the parietal boss. This second opening does not increase the danger to the patient, and it does permit the discovery of clots which would otherwise be undetected and unremoved. In the two cases in which Krönlein lost his patients, the clot was in this position and was not found by a single opening. In one of those that recovered, he made the two openings and carried a drainage tube through, inside the skull, from one to the other, after removing a large clot. These experiences led him to the conviction that, in doubtful cases, in which no local injury points to a certain spot as the proper one, it is wise to trephine at the first of the points we have just indicated; and that, if this opening does not disclose the clot or bleeding point, a second opening should be made at the second point indicated. By pursuing this plan, we cannot doubt many a patient's life would be saved which would be lost if the surgeon were not quick to recognize the signs of intracranial hemorrhage, and courageous and skilful in treating it.

For an illustration of what may be accomplished in such cases, we would again point our readers to the admirable and exhaustive paper of WIESMANN in the *Deutsche Zeitschr. f. Chir.*, Bd. xxi. and xxii., and to the instructive though short paper of Krönlein, which has prompted these remarks. Further valuable information may be gathered from an interesting monograph by URBANOWICZ, "Drei Fälle von Schädelverletzungen," etc., published at Frankfort-on-the-Main, in 1885.

UTERINE HÆMOSTATICS.

AMONG novel means for the arrest of uterine hemorrhage is the use of vaginal tampons of peat. LEISRINK, who proposes this method, was led to adopt it from the use in Germany of this substance as a dressing for wounds. He employs small sacs of gauze filled with peat so as to form cylinders one inch and a half to two inches in length, which are divided into compartments by stitching them in different directions, so as to prevent the peat from settling down in a mass. These may be made aseptic by boric acid, corrosive sublimate, or

iodoform. Leisrink has had excellent results from these tampons not only in metrorrhagia, but also in cases of affections of the cervix requiring local applications. So far as the treatment of menorrhagia is concerned, we cannot see that this tampon, which certainly is very troublesome to prepare, has any advantage over one made of antiseptic absorbent cotton. A vaginal tampon stops uterine hemorrhage purely by mechanical means, just as one may stop a hemorrhage from the surface of the body by direct pressure.

Huchard advises, in uterine hemorrhage, a combination of ergotine and sulphate of quinine, remedies directed to the contractility of the vessels, with digitalis to influence the circulation, and hyoscyamus to control the irritation and pain. He directs thirty grains each of ergotine and of quinine, and three grains each of powdered digitalis and of extract of hyoscyamus, to be made into twenty pills, of which five, eight, or ten are given daily. The quantity of digitalis and of hyoscyamus seems very small, and it is probable that the pills would be more efficient if it were doubled.

Chéron, in the *Révue Médico-Chirurgicale des Maladies des Femmes* for March, refers to some experiments made upon animals, reported by Arduin to the Congress of Grenoble in August, 1885, to determine the relative value of ergot, of the muriated tincture of iron, and of antipyrine as local applications for the arrest of bleeding. These experiments proved the superiority of the last.

In consequence of the results obtained by Arduin, Cosati was led to use antipyrine. His conclusions are that it is a powerful hæmostatic, the action of which is shown in a very short time; it is superior to ergotine, to perchloride of iron, and to the thermocautery, and in many cases it ought to be selected because of its antiseptic and antipyretic action. Chéron has used it successfully in a four per cent. solution for the arrest of hemorrhage from a lacerated cervix, which applications of perchloride of iron had only temporarily stopped. He also used it successfully in the hemorrhage occurring in an operation for vesico-vaginal fistula, and in one for perineoplasty. In epithelioma of the neck of the womb, antipyrine may be used by injection or immediately applied, and it lessens the bloody and sero-purulent discharges.

THE SURGERY OF THE LUNGS.

The surgery of the lungs has a definite, though limited, field, and satisfactory progress has been made in our knowledge of the cases in which operative interference is called for. A recent review of a thesis on this subject by True, appears in *L'Union Médicale*, Nos. 6 and 7, 1886.

Incision of the lung—pneumotomy—is practised for abscess, gangrene, and hydatid cysts. Of 19 cases of non-tuberculous pleuro-pulmonic abscess, treated by incision, drainage, and antiseptic injections, 6 recovered, 8 died, 1 was improved, and 3 were convalescent at the time of reporting. In 13 cases of incision of tuberculous cavities, the mortality after the operation has been about 50 per cent., and the average duration of several was 46 days. In 13 cases of gangrene there was complete recovery in 3, death in 6, and improvement in 4 cases. In hydatid cysts of the lungs and pleura the results have been much more striking. True gives only 3 cases in his monograph, but in Thomas's recent work on the hydatid disease 32 cases are noted, 25 of which were in Australia; of the total number, there were 27 recoveries and 5 deaths.

Resection of portions of the lung has been performed in 5 cases in phthisical patients. The operation has proved fatal in each instance, and in the case of Block, who excised both apices, the woman died almost immediately, and Block, to avoid the consequences of an inquiry, committed suicide. In two instances portions of the lungs have been resected for malignant growth; in 1 case, a girl of eighteen, with complete recovery, in the other death took place twenty-four hours after the operation. In a case of wound of the lung with uncontrollable hemorrhage, Omboni opened the chest, incised the wounded portion of lung and looked for the ball. The patient died of septicæmia on the eleventh day.

Intrapulmonary injections have been practised extensively of late years, but their value is still undetermined. Certainly, in fetid cavities, tuberculous or bronchiectatic, disinfection may in this way be thoroughly effected, and this probably constitutes the most important indication for this method of treatment. Not much can be expected from this plan as a curative measure in ordinary phthisis when cavities have formed, but in the early stage it is quite possible that repeated injections might be of service in checking the progress of the disease. As stated in The News of January 9, 1886, Lépine has reported favorably upon the use of intrapulmonary injections in pneumonia. It may be noted with satisfaction, that this procedure does not appear to be in the least degree dangerous, and no serious effects have been reported after the use of very varied substances, such as iodoform, creasote, carbolic acid, corrosive sublimate, and iodine. We cannot think that this plan has a very wide applicability, and except in cases of superficial cavities with stinking contents, its employment is of doubtful value.

By far the most hopeful outlook in pulmonary surgery is in the treatment of cases of abscess, gangrene, and hydatid by incision. The results hitherto obtained are most encouraging, particularly in hydatid disease, but in cases of abscess and gan-

grene, if favorably situated, free incision with drainage and disinfection, when performed early, before the patient is exhausted, may be expected to yield equally good results.

SOCIETY PROCEEDINGS.

THE AMERICAN MEDICAL ASSOCIATION.

Thirty-seventh Annual Meeting, held at St. Louis, May 4, 5, 6, and 7, 1886.

(*By Telegraph.*)

(Specially reported for THE MEDICAL NEWS.)

TUESDAY, MAY 6.—FIRST DAY.

THE thirty-seventh Annual Session of the American Medical Association was called to order at 11 o'clock, in the Exposition Music Hall by Le Grand Atwood, M.D., Chairman of the Committee of Arrangements, the President, William Brodie, M.D., of Michigan, in the Chair. After a prayer by the Rev. Montgomery Schuyler, an *Address of Welcome* was made by the Hon. D. R. Francis, Mayor of St. Louis, in which he cordially welcomed the Association in behalf of the Municipal Government.

Dr. Le Grand Atwood, on behalf of the Committee of Arrangements, also extended a welcome.

The ex-Presidents of the Association, represented by Drs. N. S. Davis, J. M. Toner, T. G. Richardson, and D. W. Yandell, were then invited to seats on the platform.

The Committee of Arrangements then reported the programme.

PROTESTS AGAINST ADMISSION TO DELEGATES.

The Chairman of the Committee of Arrangements announced that he had received protests from the Philadelphia County Medical Society, the Davidson County (Tennessee) Medical Society, New York Academy of Medicine, Tri-State Medical Society, and the Mississippi Valley Medical Society. They were all referred to the Judicial Council.

DR. D. J. ROBERTS, of Tennessee, protested against the admission of all the delegates who had protested against the admission of the delegates from the Davidson County Medical Society.

Drs. Malcolm Johnson, of New York, Morrison, of St. Louis, W. H. Atchison and M. Kellogg, of New York, were made members by invitation.

DR. BRODIE then delivered

THE PRESIDENT'S ADDRESS.

He stated that no epidemic had visited our country during the year. The Association has lost some of its most honored members during this period, the most prominent of whom were W. K. Bowling, of Tennessee, John L. Atlee, of Pennsylvania, and Austin Flint, of New York, all ex-Presidents of the Association. A brief history of each was given, as well as an estimate of his character, professional labors, and contributions to science.

The organization of the Association was then reviewed from the original motion of Dr. Isaac Hays, at the National Convention in New York, in 1846, through the successive steps to the completion of the formation of the Association at the first meeting in Philadelphia in 1847. Upon this organization has arisen the most important medical association of this country. The resolution of Dr. Hays led to the formation of a harmonious organization of the medical profession of the entire country, and also to the adoption of a National Code of Ethics. Only four of the original pioneers of the Association are now living, of whom two have been honored with its presidency—Alfred Stillé and N. S. Davis. Twenty-two States and the District of Columbia were represented at the meeting held at Philadelphia in 1847, under the presidency of Dr. Nathaniel Chapman.

The most important subject of consideration at that meeting was the question of the advancement of the standard of medical education, and it was referred to the consideration of a special committee. The importance of State Licensing Boards, as now existing in Illinois, was recognized. Of all the State Medical Societies which have adopted the Code of Ethics, but one, that of New York, has repudiated it. To the honor of the profession of this State, be it written that the majority of the profession of the State have repudiated the action of this Society. Of the original committee which framed the Code of Ethics, only one member is now living—Dr. Alonzo Clark, of New York.

The character of the scientific work done by the Association, as shown by its *Transactions*, was then passed in review.

He recommended that the Association express its approval of the proposed investigation of the cause of yellow fever at the expense of the National Government. He recommended also the formation of a Section of Dermatology and Syphilis, and that the Secretaries of Sections be made permanent officers, subject to removal by the Sections. He stated that the *Journal* of the Association has thus far been successful, financially and otherwise. He denounced as derogatory the endorsement, in any manner, of proprietary medicines, and he held that practically there is no difference between patent and proprietary medicines, and that disgrace should rest upon the name of any man who allowed his name to be used in connection with the advertisement of proprietary preparations.

It has been suggested that the Association should form branches in different States, similar to those of the British Medical Association. He could see no advantage in the plan, but suggested its reference to a special committee, to report next year.

The organization of the International Medical Congress, he stated, was now being completed, and that the report of the Committee on Organization would be found satisfactory. The Committee had relieved the Association from any responsibility in connection with the Congress. He then passed in review the formation of the original Committee in Washington in 1884, and the subsequent action at New Orleans. The work which the original Committee had done was unsatisfactory; two courses were then open to the Association in 1885: either to discharge the Committee or to enlarge it. The latter course was pursued, and the right of the Association to take this action was indicated by the fact that the original Committee had reported back to the Association. He cordially agreed with the sentiment of the medical profession, that the report of the present Committee be adopted, and that the disappointed members

of the profession should rise above personal interests in the expression of their feeling of national hospitality.

Matters of importance may come before the Association in this meeting; matters which may involve the honor of the profession. Thirty-nine years of existence entitle the Association to the support of the profession, and he asked that careful consideration be given to any and all movements which may arise to jeopardize it. Let it be said, that with foes within and foes without, the Association still stands as the representative of the American profession.

DR. J. H. MURPHY, of St. Paul, moved that the Association tender its thanks to the President for his address, and that its recommendations be referred to a special committee.

REPORT OF THE COMMITTEE ON ORGANIZATION OF THE CONGRESS.

DR. J. S. LYNCH, of Baltimore, reported that the Committee on Preliminary Organization of the International Medical Congress, in accordance with the instructions of the Association, had adopted, after mature deliberation, the necessary rules for the organization of the Congress, had nominated officers, and a local Committee of Arrangements in Washington, with power to increase its members. In accordance with Rule X. of the published Rules for the Organization of the Congress, they had elected a full list of officers.

DR. J. M. TONER, of Washington, interrupted the reading of the report by a motion that the report be adopted. The motion was at once seconded and carried without debate.

A motion to reconsider was then made, and, on motion, was laid upon the table.

NOMINATION OF OFFICERS FOR SECTIONS.

DR. N. S. DAVIS, of Illinois, moved to amend the amendment of Dr. Foster Pratt, of Michigan, offered in 1884, so that the following should be substituted for Section II., Paragraph III. of the By-laws:

On the second day of each annual session, each Section shall nominate its own officers to serve for the next ensuing year, their duties to commence at the close of the annual meeting at which they were nominated, and to continue until their successors are elected.

Dr. Davis stated that the chief argument in favor of this amendment lay in the inability of the Nominating Committee to know the qualifications of the various candidates for the large number of offices to be filled in the various Sections.

DR. D. J. ROBERTS, of Tennessee, moved to amend by requiring the Sections to make the nominations on the first day, at three P. M., meridian time; but he subsequently modified his motion to the second day, at the same time.

DR. E. SMITH, of Michigan, moved to lay the motion on the table. Lost.

DR. W. T. BISHOP, of Harrisburg, moved postponement of further consideration of the subject until the Committee had reported on the recommendations contained in the President's Address. Lost.

DR. I. N. QUIMBY, of New Jersey, raised the point of order that the Committee had nothing to do with the question.

DR. A. L. GIHON, U. S. N., moved an amendment that the secretaries thus elected be permanent secretaries.

DR. N. S. DAVIS, of Illinois, stated that good secretaries would undoubtedly be retained without such a by-law.

DR. GIHON then withdrew his amendment.

DR. R. A. KINLOCH, of South Carolina, remarked that a member voting with a Section identified himself with that Section, and he inquired whether he would not thereby be excluded from work in other Sections. He thought the amendment, in effect, divided the Association into separate organizations.

DR. E. SMITH, of Michigan, objected to the amendment on the ground that an election would involve too much political work.

DR. D. S. REYNOLDS, of Kentucky, stated that an amendment adopted at the New York meeting prohibited the election to office of members who were not present. This system excluded the election of good men. He thought the amendment was unnecessary, as the Committee on Nominations is instructed to nominate only competent men.

DR. N. S. DAVIS explained that the amendment proposed concerned only the nomination of officers; the election was done by the Association.

DR. J. H. MURPHY, of Minnesota, desired to see the amendment defeated, because the city men would have an advantage over the country men, and the Eastern men would crowd out the Western.

DR. J. B. MURDOCH, of Pittsburg, thought that the amendment would lead to too much wire-pulling and log-rolling.

DR. W. W. ALLPORT, of Chicago, narrated a case in point occurring in connection with a delegation from a Chicago Medical Society.

The question was loudly called for, and the amendment, on being put to a vote, was carried.

A number of papers were referred to the several Sections, after which the Session adjourned.

WEDNESDAY, MAY 5.—SECOND DAY.

The Committee of Arrangements moved that Dr. J. A. Thacker, of Cincinnati, be made a member by invitation. Carried.

THE COMMITTEE ON PRESIDENT'S ADDRESS

was appointed as follows: Drs. J. H. Murphy, of St. Paul; A. L. Gihon, U. S. Navy; and Alonzo A. Garcelon, of Maine.

THE NOMINATING COMMITTEE

was constituted as follows:

Alabama.—
Arkansas.—W. O. Hooper.
California.—
Colorado.—J. W. Graham.
Connecticut.—W. C. Wile.
Dakota.—J. B. Van Velsor.
Delaware.—
District of Columbia.—J. W. Bulkley.
Florida.—T. O. Summers.
Georgia.—J. W. Bailey.
Illinois.—J. E. Owens.
Indiana.—T. B. Harvey.
Iowa.—William Watson.
Kansas.—C. V. Mottram.

Kentucky.—W. H. Wathen.
Louisiana.—Joseph Jones.
Maine.—C. E. Webster.
Maryland.—G. H. Rohé.
Massachusetts.—E. W. Cushing.
Michigan.—H. O. Walker.
Minnesota.—H. H. Kimball.
Mississippi.—P. W. Rowland.
Missouri.—G. W. Dudley.
Nebraska.—William Knapp.
New Hampshire.—
New Jersey.—E. L. B. Godfrey.
New Mexico.—W. R. Tipton.
New York.—E. S. F. Arnold.
North Carolina.—C. J. O'Hagan.
Ohio.—H. J. Sharp.
Oregon.—
Pennsylvania.—C. J. Lange.
Rhode Island.—H. R. Storer.
South Carolina.—R. A. Kinloch.
Tennessee.—Duncan Eve.
Texas.—J. F. Y. Paine.
Vermont.—A. T. Woodward.
Virginia.—G. B. McCorkle.
West Virginia.—G. Baird.
Wisconsin.—W. T. Galloway.
U. S. Army.—
U. S. Navy.—W. T. Howard.
U. S. Marine-Hospital Service.—Dr. W. W. Wyman.

DR. G. C. SAVAGE made a protest against the appointment of Dr. Duncan Eve, of Tennessee, and it was referred to the Judicial Council.

DR. N. SENN, of Wisconsin, then delivered the

ADDRESS IN SURGERY.

(See page 505.)

Dr. Henry F. Campbell, of Georgia, Ex-President of the Association, was invited to a seat on the platform.

DR. S. C. GORDON, of Maine, delivered the

ADDRESS IN OBSTETRICS.

He said that the year just passed had yielded no remarkable discoveries in either obstetrics or gynecology. He, therefore, confined his remarks to subjects which had been discussed in the journals during that time, and considered them in the light of experience. Old theories in medical science are being constantly exploded, and of this a good example was presented at the last meeting of the Association. It had long been held that a physician who was attending a case of scarlatina was unfitted for duty as an accoucheur; but Dr. George F. French, of Minnesota, showed then the fallacy of this view and the power of disinfectants.

He next discussed the early signs of pregnancy, and stated that he had found the test proposed by Hégar valuable, and applicable at an early date. Campbell's method of relieving the vomiting of pregnancy by postural pneumatic reduction, was approved. For induction of premature labor, he prefers retention of the sound to rapid dilatation. Anæsthesia and the forceps have done much to relieve the suffering and prevent the dangers of the parturient state; and under the judicious use of the forceps, vesico-vaginal fistula is becoming infrequent.

DR. A. L. GIHON, U. S. N., reported that the

COMMITTEE ON THE RUSH MONUMENT

had organized by the election of Dr. G. H. Rohé, of Maryland as Secretary, and Dr. J. M. Toner, of Washington, as Treasurer; that a local committee had been appointed, and also a general committee of one from each State.

DR. I. N. QUIMBY, of New Jersey, Chairman of the committee appointed last year to consider the propriety of the formation of a

NEW SECTION OF MEDICAL JURISPRUDENCE,

reported favorably thereon, and moved the adoption of the amendment proposed.

DR. SAMUEL LOGAN, of Louisiana, opposed the amendment as unnecessary, as the work coming before such a Section could equally well go before the Section on State Medicine.

DR. HENRY F. CAMPBELL, of Georgia, strongly urged the adoption of the amendment, and stated his belief that it would strengthen the profession against legal intrigue.

The amendment was adopted, and the session adjourned.

THURSDAY, MAY 6.—THIRD DAY.

The Session was opened by prayer, after which the Committee of Arrangements reported a list of receptions to the members which would be given in the evening.

The Special Committee appointed to consider the

RECOMMENDATIONS CONTAINED IN THE PRESIDENT'S ADDRESS

reported: *First.* That in the opinion of the Committee it was proper and desirable for this Association, without delay, to memorialize Congress in behalf of the pending resolution to appoint a scientific commission consisting of three members of the medical profession, to visit the habitats of yellow fever, with the view of determining the validity of the claims of Drs. Carmona and Freire, to have discovered the means of preventing or modifying the attacks of the disease.

Second. The Committee did not approve of the suggested recession from the recommendation of the use of the metric system.

Third. That it heartily approves the suggestion of the President that the Association, having created a Section of Medical Jurisprudence, shall further establish a Section of Dermatology and Syphilis.

Fourth. It concurs with the President as to the wisdom of the provision that the several Sections shall elect their own officers from men of recognized authority and experience in special Section work; and, further, in its opinion the efficiency of the Sections will be enhanced by a continuance from year to year of the secretaries of said Sections.

Fifth. It endorses the views expressed by the President respecting the *Journal of the Association* and of the exclusive proprietary interest of this Association in the papers and reports made as part of the transactions.

Sixth. The Association should emphatically denounce the endorsement by certificate, advertisement, testimonial, or indirect approval of any form of proprietary

remedies and appliances, and should instruct the Judicial Council to take action in all such cases without formal presentation of charges. That, in the words of the President, "The stigma of professional disgrace rests upon any regularly educated physician who allows his name to be advertised as endorser of any patent, secret, or proprietary medicine."

Seventh. That it is desirable that the Association appoint a committee at this meeting to consider the advisability of amending the organic law of the Association by the establishment of branches, and report thereon at the next annual meeting.

Eighth. It earnestly reëchoes the wish of the President that the members of the profession cordially cooperate in the effort to make the American Session of the International Medical Congress creditable to the country and attractive and instructive to the foreign members—sacrificing personal and private piques and disappointments in generous emulation to contribute to that success which has been unconditionally pledged in the invitation tendered to the foreign members of the Congress to meet in the United States.

A motion was then made to adopt the report.

DR. J. F. HIBBERD, of Indiana, inquired whether the adoption of the report implied an endorsement of all the statements it contained? If so, he objected to the recommendation to add another Section; the Association had too many heads now. It was impossible to secure a good attendance upon the Section of State Medicine. Jurisprudence should be added to the title of this Section, with a view to increase the interest in it.

DR. J. B. MURDOCH, of Pittsburg, thought that other provisions were objectionable. He moved the consideration of the report in sections, each resolution separately.

DR. W. T. BISHOP, of Pennsylvania, moved the postponement of action to the first order under the head of new business.

DR. I. N. QUIMBY, of Jersey City, raised the point of order that there was a motion already before the house.

DR. EUGENE SMITH, of Michigan, moved the previous question, which was carried.

DR. SAMUEL LOGAN, of Louisiana, the Acting President, decided that Dr. Murdoch's motion was the previous question. This led to a spirited discussion, and finally the motion of Dr. Murdoch was put to a vote and carried.

The original motion was then put and carried.

DR. EDWARD JACKSON, of Pennsylvania, then called for the

REPORT OF THE JUDICIAL COUNCIL REGARDING THE PROTEST

against the admission of the delegates from the Philadelphia County Medical Society.

The Chair stated that the matter was in the hands of the Council, who would present their report at the proper time.

DR. JOHN B. ROBERTS, of Pennsylvania, stated that the report of the Council in reference to this matter had been placed in the Secretary's hands yesterday, and he asked why it had not been read.

THE PRESIDENT ruled that the question was out of order.

The report of the Standing Committee on

METEOROLOGICAL CONDITIONS,

and their Relations to the Prevalence of Disease, also concerning the Collective Investigation of Disease in Coöperation with the British Medical Association, was presented by Dr. N. S. Davis, of Illinois. He stated that the progress of the work had been aided by the U. S. Signal Service, and that sufficient material had accumulated to present an elaborate report, but that it was deemed best to withhold it until the progress of the cholera epidemic in Europe was better known. The report was adopted.

THE COMMITTEE ON NOMINATIONS

presented the following report of nominations for officers for the ensuing year.

President.—E. H. Gregory, M.D., of St. Louis.

Vice-Presidents.—Drs. B. H. Miller, of Stillwater, Michigan; W. B. Welch, of Fayetteville, Arkansas; Wm. H. Pancoast, of Philadelphia; W. C. Wile, of Sandy Hook, Connecticut.

Permanent Secretary.—W. B. Atkinson, M.D., of Philadelphia.

Assistant Secretary.—J. Nevins Hyde, M.D., of Chicago.

Treasurer.—R. J. Dunglison, M.D., of Philadelphia.

Librarian.—C. H. A. Kleinschmidt, M.D., of Washington, D. C.

Section of Practice of Medicine.—Drs. J. S. Lynch, of Baltimore, Chairman; J. B. Marvin, of Kentucky, Secretary.

Section of Surgery.—Drs. H. H. Mudd, of St. Louis, Chairman; J. B. Roberts, of Philadelphia, Secretary.

Section of Obstetrics.—Drs. S. M. Johnson, of Kansas, Chairman; W. W. Jaggard, of Illinois, Secretary.

Section of Oral and Dental Surgery.—Drs. J S. Marshall, of Chicago, Chairman; E. S. Talbott, of Chicago, Secretary.

Committee on Necrology.—J. M. Toner, M.D., of Washington, Chairman.

Judicial Council.—Drs. N. S. Davis, of Illinois; Hawkins Brown, of Kentucky; William Brodie, of Michigan; D. J. Roberts, of Tennessee; R. C. Moore, of Nebraska; T. A. Foster, of Maine; James A. Gray, of Georgia.

Trustees of Journal.—Drs. P. O. Hooper, of Arkansas; A. Garcelon, of Maine; L. S. McMurtry, of Kentucky.

Time and Place of Next Meeting.—Chicago, first Tuesday in June, 1887.

Chairman of Committee of Arrangements.—Charles Gilman Smith, M.D., of Chicago.

The report was unanimously adopted.

DR. J. M. KELLER, of Arkansas, Chairman, presented the report of the Special Committee on

CREMATION.

He reviewed the work of the Committee from its organization to the present date. The subject had excited considerable public and professional attention. So many articles have appeared on the subject that the Committee has deemed it necessary to make only one or two additional statements. It believes that the horrid earth burial does more to propagate disease than any other custom.

A motion was made to adopt the report.

A motion to lay the report on the table was made and lost, and the original motion to adopt was carried by a vote of 159 to 106.

DR. THAD. A. REAMY, of Cincinnati, moved a reconsideration of this motion, giving as a reason his unwillingness to adopt or endorse a report which denominated the ancient and sacred rite of burial as a horrid custom. He further opposed the statement that organisms which result from the putrefaction of the body are necessarily pathogenic, as contrary to scientific fact.

The motion to reconsider was adopted by a vote of 198 to 25.

DR. JOHN MORRIS, of Baltimore, moved the reference of the report to the Section on State Medicine. Adopted.

THE JUDICIAL COUNCIL AND THE PHILADELPHIA DELEGATES.

DR. JOHN B. ROBERTS, of Philadelphia, moved that the Secretary be instructed to explain to the Association why the report of the Judicial Council which had been handed to him yesterday had not been read?

THE PRESIDENT ruled the motion out of order.

DR. EDWARD JACKSON, of Pennsylvania, appealed from the decision of the Chair.

DR. SAMUEL LOGAN, of Louisiana, moved that the decision of the Chair be sustained. Adopted.

DR. J. M. TONER, of Washington, presented a resolution that the Association return to the Judicial Council its report concerning the protest against the admission of the delegation from the Philadelphia County Medical Society. Adopted.

DR. TONER then requested that the witnesses in the case report immediately in the room of the Judicial Council.

DR. J. T. WHITTAKER, of Cincinnati, then delivered the

ADDRESS IN MEDICINE,

which will appear in the next issue of THE MEDICAL NEWS.

DR. JOHN H. RAUCH, of Illinois, then delivered the

ADDRESS IN STATE MEDICINE.

He first reviewed the definitions which have been given of state medicine, beginning with that of Dunglison. Parkes, in his *Manual of Practical Hygiene*, defines it to be the relation of the State to purely sanitary matters. Chaumont widens this definition and includes questions of public health and hygiene, general, special, and individual. The distinction between preventive and curative medicine he held to be artificial and unnecessary, and he agreed with Richardson that preventive medicine is not a science separated properly from so-called curative medicine. In addressing this Association, in Atlanta, in 1879, Dr. Homer A. Johnson, of Illinois, said that it is the duty of the State to protect its citizens from the injuries which they may sustain from the practice of incompetent physicians and surgeons as well as from any other source of danger to the public health. State medicine, therefore, should be defined as the connection of the State with that branch of science which relates to the prevention, cure, and alleviation of the diseases of the human body. Therefore, his report of the discoveries and advances during the past year should logically begin with the subject of the regulation of medical practice, which also necessarily includes the subject of medical education. Before discussing the existing statutes, he reviewed the authority of the State to control medical practice. He held that it was inherent and plenary, and he reviewed the history of the various attempts in the different States to exercise control over medical practice down to the passage of the Medical Practice Act in the State of Illinois, an example which has since been followed several States. The general tendency of legislation is toward securing a generally recognized standard of professional attainment. He stated that there had been a notable advance in the standard of medical education since the enactment of these laws. Of one hundred and twenty existing colleges in the United States, ninety-three had enacted educational requirements, as shown in a preliminary examination before matriculation. A low standard of education and absence of uniform legal requirements are responsible almost exclusively for overcrowding in the profession. He stated that over seven per cent. of the entire number of physicians graduating fail to make a competence by their profession and seek other methods of livelihood. He had followed with care the career of 789 out of 1000 physicians who had studied four years and attended three courses of lectures before graduation. These are, with few exceptions, the successful and prominent members of the profession in the localities where they reside.

The foregoing considerations lead logically to the following conclusions:

1. That the best interests of the public welfare demand the highest attainable standard of educational qualifications, skill, ability, high professional and personal honor, integrity, and morality.

2. That it is the duty of the State to exercise the inherent plenary power and authority which it possesses for the protection and promotion of the public welfare, to secure such a standard.

3. Uniform State laws, exacting of every aspirant to the practice of medicine proof of his professional fitness.

Competency would prove the most potent agency in improving the standard of medical education and in enhancing the dignity and usefulness of the profession. He suggested specifically that the Association put itself on record at this session by recommending the extension of the period of study to four years, and the attendance upon lectures to three full terms, with ample hospital and clinical instruction. Also, that the Committee on State Medicine be instructed to frame regulations for the practice of medicine, which should be endorsed by the Association, as the standard to which all existing legislation should be made to conform as speedily as practicable, and which should be urged for adoption upon all the States where no such laws already exist.

The number of sanitary organizations, legal and voluntary, have greatly increased, contributions to sanitary literature are numerous and valuable, and professional and public interest has been elicited as it has never been before.

Stimulated by the presence of cholera in southern and western Europe, four State Boards of Health have been established during the year.

From personal inspection of the quarantine regulations along the Atlantic coast, the St. Lawrence, the Gulf, and the Rio Grande, Dr. Rauch concluded that cholera, smallpox, and yellow fever may be excluded

from the United States by intelligent use of the agencies still at our command. He spoke with earnestness of the necessity of national control over immigration, as the question is becoming daily, hourly more urgent. How much longer, he asked, will it be safe or prudent to permit the unrestricted influx of the vicious, insane, pauper, and infected immigrants into our midst?

He closed his address with a quotation from a paper on the relations of smallpox to vaccination from the fifth annual report of the State Board of Health of Illinois, showing the advantages of humanized virus over bovine regarding promptness and certainty of action, particularly in cases of emergency.

AN ENTERTAINMENT FUND FOR THE CONGRESS.

Dr. A. Y. P. Garnett, of Washington, D. C., moved that the delegates to the Association be requested, on their return home, to adopt such measures as may to them seem best to call the attention of their respective members of Congress to the necessity of making an appropriation to assist the medical profession in properly receiving and entertaining the International Medical Congress in Washington, in 1887. Adopted.

THE TREASURER'S REPORT

was then read. It pointed out the increased proportion of annual dues now collected, which, in his opinion, was due to the publication of a journal instead of an annual volume of transactions. Formerly only fifty per cent. of the members paid their dues; now, those not paying regularly are conspicuous by their paucity. The balance in the treasury was $378.29. No detailed statement of the finances was given.

THE LIBRARIAN'S REPORT

stated that 232 distinct titles had been added in addition to various reports, making 100 per cent. increase over the average of former years.

Dr. A. L. Gihon, U. S. N., offered an

AMENDMENT TO THE BY-LAWS,

establishing a Section on Dermatology and Syphilis.

Dr. Gihon moved that a committee of nine be appointed, including the President, the President-elect, and the four Vice-Presidents-elect, to consider the advisability of

MODIFYING THE ORGANIC LAW

of the Association so as to authorize the formation of branches, and to report at the next meeting. Adopted.

Adjourned.

(To be concluded.)

AMERICAN SURGICAL ASSOCIATION.

Seventh Annual Session, held at Washington, D. C., April 28, 29, and 30, and May 1, 1886.

(Specially reported for The Medical News.)

First Day, April 28.—Morning Session.

The Association was called to order at 11 A. M., in the Library of the Army Medical Museum by The President, Moses Gunn, M.D., of Chicago.

The reading of the minutes of the previous meeting was dispensed with, as the entire record of proceedings had been published in the volume of *Transactions*.

The President then delivered his

ANNUAL ADDRESS.

(See page 511.)

Afternoon Session.

Immediately after the call to order, The President appointed the

COMMITTEE ON NOMINATIONS,

consisting of Drs. J. C. Hutchison, C. T. Parkes, W. H. Pancoast, N. Dandridge, and N. Senn.

Dr. Christopher Johnson, of Baltimore, then read a paper on

DIAGNOSTITIAL LAPAROTOMY.

The rapid advance of modern surgery calls for an expression of opinion with regard to explorative laparotomy, as well as for the purpose of arriving at certain laws limiting the performance of the operation under certain circumstances. Whatever the character of the growth or condition which calls for treatment in the province of surgery, there would still remain a question as to the best method of reaching the seat of the difficulty. The bladder yields up its contained tumor or calculus through an incision in the perineum, or, it may be, by a cholecystotomy, without incision of the peritoneum; but how is the abdominal cavity to be reached? The answer is, by laparotomy. The point to be determined is, whether the operation is not, in many cases, rather a duty than a matter of election? If the surgeon has no right to refuse relief to a patient suffering from obstruction of the respiratory passages, has he a right to refuse to give relief when the *prima viæ* are suffering from obstruction? The bold surgeon must establish the precedent, or surgery would be at a standstill. Modern antiseptic practice, headed by Listerism, takes its place by the side of anæsthesia, rendering many cases possible which were formerly impossible. The mortality of incised wounds of the abdomen, without visceral lesion, is low; so, also, is the surgeon's diagnostitial laparotomy.

Of the 94 diagnostitial laparotomies reported by Lawson Tait out of his total 100 cases, but 2 died. Cases have since been reported in which an examination lasted as long as a hour, and yet recovery occurred without untoward symptoms. A great deal depends upon the time at which the operation is undertaken. Mr. Graves says that laparotomy is not in itself a severe undertaking; its high mortality depends upon the fact that it is usually undertaken too late. "It is regarded as a last resort, whereas it should be the first as it is the only resource."

Many objections to laparotomy have been raised. It is objected that an acute invagination may become chronic; but while this is true, it is also true that most cases do not live long enough to do so. The laparotomy in these cases resolves itself into an exploratory incision which adds little to the risks of the patient. As Mr. Graves thinks, it adds little to the mortality of the operation. It may be considered a proper aid to surgical diagnosis.

The fourth conclusion of Dr. Dennis, in his recent article in The Medical News, is of interest in this connection. It is that laparotomy adds no danger to the patient, if performed under the strictest antiseptic precautions. There are several different kinds of lapa-

rotomy, determined by the object for which it is performed. Those cases in which it is performed for the removal of the uterus or some of its appendages, including cases in which it is performed for the removal of a fœtus, fill the greater part of the field.

The speaker expressed the fear that all cases of laparotomy for intestinal obstruction are not placed on record. Our faith in statistics is increased when we see the skilled operators in gynecology rating their recoveries higher and higher each year. It is difficult to hesitate now as to what shall be done in cases demanding immediate and prompt relief. The good surgeons and true should seize upon and crush out the causes of death which lurk secure behind the abdominal wall. Mr. Tait is quoted as having directed to cut the patient open and turn the evil material out. The late Dr. Gross once said, "I never know exactly what I am to find until I get into the abdominal cavity." When we compare the great mortality attending the ancient Cæsarean section as compared with the low mortality of the modern Porro-Müller operation, we are impressed by the contrast. Much of the difference depended doubtless upon the crude methods which were then practised as compared with the antiseptic methods of the present, aided also by the use of anæsthesia. The old abdominal incision was as innocent when done in the old way as it is now when it is done for the extirpation of the uterus and annexes. If the Porro-Müller operation does not swell the mortality, it is due to antisepsis and anæsthesia, as well as perhaps to modern methods of surgery.

Hitherto we have taken the ground that exploratory laparotomy is a thing proper to be done under certain circumstances; now we take a higher ground, and say that it becomes the bounden duty of the surgeon, under certain circumstances which demand its performance as imperatively as though it were the practice of a certain principle.

In conclusion, Dr. Johnson discussed at some length the indications for exploratory laparotomy, not confining these to the most obscure affections, but showing by illustration that many apparently simple conditions may be so obscure as to be confounded with others which render an exploratory incision highly desirable if not imperative. Apart from the fact that many, if not most laparotomies are confirmatory or diagnostitial, he would establish two great groups of cases calling for laparotomy:

1. All cases in which the diagnosis cannot be made without its aid.

2. All those cases in which a diagnosis having been made, no definite line of operation can be marked out, and no abandonment of active measures be entertained or justified.

Finally, under every circumstance, the diagnosis ought to be determined.

With regard to the time of the operation, he repeated, in conclusion, that it cannot be made too early, and that it is a decided fact that in most cases the fatal result is largely due to the delay which has preceded its execution.

Dr. A. Vanderveer, in opening the discussion, remarked that it is an admitted fact that many operations within the abdomen that a few years ago were considered impossible, now, by the aid of antisepsis, are made successful. And yet it is true that the operation of abdominal section for the relief of such conditions as acute peritonitis, salpingitis, and acute intestinal obstruction has, as yet, received but slight endorsement from a great many of the profession, and but little, if any, encouragement from the public. We stand, with reference to the operation, as we did with reference to ovariotomy twenty-five years ago—a few brilliant results, but many failures and many points yet to be discussed and settled in the minds of surgeons. It is true that Parkes, Bull, Dennis, Fowler, and others have done splendid work, and have been rewarded by seeing some of their cases recover; yet to-day it is an operation gaining a foothold slowly. If we consider the subject of intestinal obstruction, we must admit that it is by no means of infrequent occurrence, and that the record, as well as in wounds of the abdomen and contents, is almost invariably fatal. We know well from our pathological studies that certain lesions occur in which it is impossible for medical treatment to be of any avail. One is inclined to take his own experience and use it in the desperate cases that present, and insist upon it that the unfortunate patients be given the benefit of what may seem to them a very severe and dangerous operation.

In a paper presented to the Medical Society of the State of New York, in February, entitled "A Report of Cases of Perityphlitic Abscess," the speaker made the suggestion that in acute cases of perforation of the appendix an abdominal section be made, the contents of the peritoneal cavity washed out, and such repair brought about as was possible. Yet up to this day little progress has been made in any way in treating such cases. At the present time there is a great difference of opinion among surgeons as to the treatment of intestinal obstruction. It is necessary that as careful and correct a diagnosis as possible be made in these cases. If impacted feces, if foreign bodies, if intussusception within or tumors pressing without be the cause, a line of medical treatment can be tried; but when thoroughly done, it ought not to be said that nothing more can be offered in the way of operative interference. Mr. Jonathan Hutchinson, of London, is one of the number who believe in what he terms abdominal taxis, under an anæsthetic, and is opposed to early interference. At the same time with his abdominal taxis he uses large enemata and laxative medicines. If these means do not succeed, he waits and keeps the patient on a low diet, and gives opium and belladonna internally, and subsequently repeats the abdominal taxis. He favors laparotomy as a last and most desperate resort.

Mr. Frederick Treves, and many others, take the opposite side of the question, considering the conditions which produce acute obstruction for the most part of a necessarily fatal character, unless speedily relieved. They do not waste time in what they regard as useless, if not injurious, manipulations, and proceed to open the belly as soon as assured that the case is one of serious obstruction, and not one of obstinate constipation.

It seemed to him important for us to consider what is the proper time for operating in these cases of intestinal obstruction. We should be cautious not to delay too long. As to wounds of the contents of the abdomen, a line of treatment is, perhaps, becoming more estab-

lished, and that is, an early operation for closing the opening in the intestinal wall, to control hemorrhage, and to wash out the abdominal cavity and free it of whatever foreign substance has found a lodgement there.

Operations upon the gall-bladder, the spleen, pancreas, the liver, the kidneys, and mesentery, are slowly, hesitatingly, but surely gaining ground. As to the surroundings of these patients, it is unquestionably better that they be taken to a quiet, well-regulated hospital where cleanliness, experienced nursing, and other advantages may be had. Where this is not possible the best sanitary measures should be adopted, and every attempt at antiseptic precautions made. As to the method of making the abdominal section, he recommended the section in the median line. When the section has been made and the intestines roll out, as they often do, distended with gas, he advised the incision of the most prominent loop for the purpose of permitting the escape of gas and other contents, after which it would, as a rule, be found an easy matter to find the wound and stitch it. Reference was further made to the method of opening the stomach and forcibly dilating the pylorus, as one of the most brilliant advances of modern surgery.

With reference to the closure of the abdominal wound, he believed the method of Sir Spencer Wells, by means of deep through and through suture, the best. He had little hopes of the method suggested by some at the present time, of bringing together first the peritoneum and then the muscular layers and skin separately. Probably there is no better external dressing than the simple Gamgee pad and adhesive plaster.

Dr. J. Ewing Mears preferred to arrange the subject into: 1. External examination as a means of diagnosis; 2. Internal examination where it is possible to be made through the exploration of the pelvic cavity; 3. Aspiration; 4. Laparotomy. Laparotomy is thus placed last, to be resorted to only after all other methods have been employed, because he regarded it as the most serious method of examination that can be made.

We have to discuss, he continued, first the proposition which Dr. Johnson first laid down: "All cases in which the diagnosis cannot be made without its aid." We have nothing to do with laparotomy as a method of treatment. He did not hesitate to open the abdomen when it is necessary, and yet the more experience he has, the more he is led to believe that the abdominal cavity should not be opened without due consideration and hesitation. Death is a very severe penalty to pay for the perfection of a diagnosis, and that has been paid a great many times. It seemed to him that, in the investigation of the condition of the organs of the abdomen, we must not go too hastily, or resort to laparotomy too soon. We should study rather to be able to recognize the condition within without its aid, and learn to make a diagnosis by means of the fingers aiding what we can see. There is danger that we will be led to make the operation too hastily simply because Mr. Tait has said that it is one of little consequence. Mr. Tait states that it is necessary to make only a small incision, large enough to admit one finger, or, possibly, two. The speaker had, however, found it impossible in several cases to determine the underlying condition until the wound had been enlarged sufficiently to admit several fingers or the whole hand.

There are many conditions, he admitted, in which we are unable to make the diagnosis without the operation, and he fully agreed with Dr. Johnson, that the operation should be performed in all cases where the life of the patient depended upon it.

In conclusion, he stated that he believed the condition of the peritoneum had much do do with the danger or immunity with which the cavity is opened at different times. It is a fact, that at times a very slight injury to the healthy peritoneum will terminate in death, while at others an extensive wounding of a peritoneum which has been long subjected to the presence of a tumor will in no way retard the recovery of the patient.

Dr. C. T. Parke remarked that the tenor of the paper had been such as to establish the point that all other resources should be exhausted before laparotomy should be resorted to, whatever be the condition for which section is made. He had been impressed by a reference in the paper to the length of the abdominal incision. In his opinion, this had little if any influence on the result of the operation; he had, however, observed that in cases in which he had been required to prolong his incision above the umbilicus, if they recovered, they passed through a somewhat longer period of convalescence. There has, further, always been some trouble with the stitches. With regard to the mortality attending incisions of the abdomen, so far as his experience went, he could not say that incisions made for exploratory purposes have had anything to do with the mortality. In every case in which a post-mortem examination followed the operation, nothing had been found in the abdominal incision, whether short or long, which could have had anything to do with the cause of death. He then reported a case which had proved very instructive to him, with regard to the danger of opening the abdomen. A woman had been hooked by a cow, the abdomen ripped open, the bowels protruding. These were cleansed, returned, the wound closed, and recovery promptly followed, without even a circumscribed peritonitis. If cases of this sort will get well, the surgeon ought not to hesitate to persist with his incisions. With reference to the method of Mr. Hutchinson, of London, for the relief of intestinal obstruction, he narrated a case in which the patient had been put through the treatment until too late for further methods, and death ensued. The cause of the obstruction was found to have been a firm band of adhesions, which it required considerable force to release.

He fully concurred in the opinion that, after all other methods of relief have been employed, it is the bounden duty of the surgeon to resort to section for the purpose of determining the cause of the difficulty.

In penetrating wounds of the abdomen, external manipulation or examination without incision does no good. In these cases there is no alternative but to open the abdominal wall in the median line. There is no place where the opening can be made so easily and where the organs can be so well examined as in the median line.

He was strongly opposed to the practice of closing the abdominal incision by separate sutures. It is not right to keep the patient under anæsthesia long enough for this purpose.

With reference to the possibility of differing results depending upon a different condition of the peritoneum,

as referred to by Dr. Mears, he thought the different results depended rather upon differences in the pedicle. For example, in ovarian tumors (in which the peritoneum has become subject to pressure) the pedicle is small as compared with that of uterine tumors, in which the peritoneum is practically healthy.

DR. L. MCLANE TIFFANY remarked that the term laparotomy does not imply simply an incision of the abdominal walls. Laparotomy is undertaken when the patient is ill, when practically the condition of the patient is desperate; the powers of life are depressed, and in addition to that depression there is added, not the incision of the abdominal cavity only, but the opening of the largest serous cavity of the body, the inspection of its contents, and, in addition to that, in a number of cases, some surgical procedure, after which the toilet of the peritoneum is done. The term should be made to include all these various manipulations. The patients are frequently met in a state of profound coma from which they do not arouse. This is especially the case in intestinal obstruction. He had seen four of these cases since the last meeting. In two the operation of laparotomy was declined; in two it was accepted, and in one successful. One of these (fatal) was a woman, seventy years old, with an obstruction lasting seven days. The obstruction was found to be a peritoneal band at the splenic flexure of the colon. The abdomen was enormously distended when first opened. The intestine gave way, permitting the escape of gas and collapse of the walls. It was only after this had occurred that the actual condition of obstruction could be detected. He realized fully what had been said of the importance of permitting such an escape of gas.

There is, however, a condition which calls for laparotomy in which the operation is useless. A case of this kind was then reported. A woman had suffered from an intestinal obstruction for eight days. Injections were administered until the patient claimed that she could taste the suds, but no evacuation was obtained. The autopsy revealed a loop of intestine of about eight inches in length, of a livid red color, firm and inelastic, totally unlike a normal intestine. The speaker concluded that the hyperæmic condition which was here present was much the same in character as the engorgement of lung tissue which was formerly called pulmonary apoplexy; and that it was a paralytic condition of the portion of the intestine at that point.

In the majority of cases of pistol-ball wounds met in so-called civil practice, where a small ball is used, it is impossible to judge whether or not injury has been done to the intestine. In such cases it is difficult to determine what should be done. Opening the abdomen is not usually attended by much harm, but it is an operation which is capable of much harm at times.

DR. J. FORD THOMPSON stated that he desired to report two cases, of interest in connection with this subject. The patient had suffered several years from a tumor resembling in many particulars an ovarian tumor; but there were two sinuses leading from it and opening in the groin, one passing to the right and the other to the left. The abdominal enlargement was as great as that at the fifth or six month of gestation. He concluded to operate by following the sinuses. The right sinus was chosen, and was followed for some distance in the abdominal wall before it entered the cavity. When the cavity was opened a large tumor presented, but there was no explanation of the flow of pus. He, therefore, introduced his hand and passed it up around the tumor without difficulty. The tumor was found firmly attached to the abdominal wall toward its upper portion, and as it was concluded that it was an inflammatory condition of that wall, it was decided to close the wound without further exploration. The patient recovered from the operation, but died five months after. The autopsy then revealed a condition which had never been suspected, and one which he had never before seen. The enlargement was simply the spleen, which had fallen down behind the pubic bone. It was enormously enlarged and had become perfectly adherent to the abdominal walls except at the two points at which the sinuses obtained exit.

The other case was one of a small tumor in the right hypochondriac region, easily movable, painful upon motion, or upon pressure from without. An incision was made to about three inches above the umbilicus, in the median line. The tumor was seized and brought to view. It was, as he concluded, a carcinoma of the mesentery, probably involving the transverse colon, as that portion of the intestine was found running through the tumor. It invaded also the liver, the attachment to that organ being fully two inches in diameter. Beyond the encroachment of the disease the liver appeared to be perfectly healthy. The operation could not be completed, and the wound was closed. The woman recovered without difficulty from the operation.

With reference to the methods of suturing the abdomen, he preferred the use of two or three sets of sutures. The old continuous suture too easily permits the entrance of pus from the wound into the abdominal cavity. The advantage of using a separate suture for each layer of the abdominal wall is that the internal peritoneal wound will have healed sufficiently to prevent the entrance of pus before suppuration shall have been established.

DR. W. H. CARMALT, of New Haven, reported a case of intestinal obstruction in which he had not made a laparotomy, but had ever after regretted that he had not done so. The case was one of obstruction. The patient, when he was called, was in a condition so closely bordering on col' pse that he decided that it was not proper to operate. She had been ill for about five days. She died within thirty-six hours after his refusal to operate, and the autopsy revealed the error of his opinion. The obstruction was found to have been due to a binding down of the intestine at a point deep in the pelvis, but it was probable that an operation would have relieved the difficulty.. The autopsy demonstrated, however, that no small opening into the abdomen, large enough only to admit two fingers would have been of any benefit for diagnostitial purposes, for the adhesion was so low down that it was not a matter of ease to reach it with the hand in the abdomen.

DR. MEARS stated that, owing to a misunderstanding of a part of his remarks, he desired to reiterate what he had said, viz., that he made a distinction between a laparotomy for the purpose of diagnosis and a laparotomy as a means of treatment. With reference to the latter operation, he fully agreed with the Fellows of the Association, that it is a highly proper procedure under circumstances which demand it. But as to lapa-

rotomy as a diagnostic operation, he would resort to it only when all other means have failed. When it is performed, the surgeon should be prepared to make at once any subsequent step that may be demanded.

Dr. Johnson, in closing the discussion, stated that he had intentionally confined his communication to the subject of laparotomy as a means of diagnosis, without reference to the purposes for which the operation is to be employed and without reference to the methods of diagnosis which should precede it. As a rule, when these patients present themselves for operation they are in such a condition that they cannot live without it, and if the operation prove successful, it is a clear gain, without the possibility of a loss. With reference to the suture that is used, he thought it was a matter of choice. Some surgeons prefer one kind of suture, others another, but the result is about the same from all.

With reference to the length of the incision, he believed that it is more serious when carried above the umbilicus, but surgeons cannot always be choosers. The incision should always be made in the median line.

Second Day, April 29.—Morning Session.

The Association was called to order by The President at 11 o'clock.

Dr. Harold C. Ernst, of Jamaica Plain, Massachusetts, read a paper entitled

A consideration of the bacteria of surgical diseases,

prepared in compliance with a request of the Association at its last meeting. He remarked that the older methods of investigating the suppurative processes of the body were supposed to be conclusive It was found, for example, that the introduction into the body of certain "irritant" substances was followed by the formation of pus. The chief substances which were used in these investigations were croton oil, cantharides, and like substances. Later investigations led to the belief that the formation of pus in these experiments was due not to any specific power of the substance so introduced. It has been found that pus-formation does not occur if these irritant substances are introduced without the introduction of septic matter. And it is now settled that no suppuration will occur without the introduction of microörganisms. This point being determined, the study of the microörganisms which have this power becomes of interest. Pasteur was one of the first to enter this field of investigation. Since these investigations, the term "microörganism of pus" has been used as though there was but one form of organism capable of giving rise to suppuration of whatever kind. Later experiments have, however, shown that there are many organisms thus endowed. One of the most thorough students of these varieties is Robert Koch. At least twelve varieties have been described up to the present time. All have not, however, been subjected to a definite staining process as has that of the bacillus tuberculosis. The properties of the microörganisms which give them the right to be classified into at least twelve varieties, are:

1. Morphology—form, size, color, and arrangement.
2. The power of motion, or its absence.
3. Behavior upon the culture material, including the form and color of the colony that is produced.
4. The temperature at which they flourish.
5. The rapidity of their development.
6. Whether or not they produce spores.
7. Whether or not the presence of air is necessary to their development.
8. Whether they produce gas.
9. Whether they liquefy the culture material.
10. Their behavior under the action of staining materials.
11. Their pathogenic powers when inoculated into the lower animals.

These tests had, when applied to the pyogenic microorganisms that have up to the present time been discovered, divided them, according to the best bacteriologists, into the following twelve classes:

1. *Staphylococcus pyogenes aureus.* This form, he said, is very abundant in pus. Its morphology, color, behavior in culture, reaction to coloring matters, etc., were all described, and a culture specimen of an advanced generation presented for inspection. Under cultivation it produces an orange color.

2. *Staphylococcus pyogenes citreus*, also found in pus, having all the properties of the preceding staphylococcus, with the exception of the color of its colony, which is a lemon-yellow.

3. *Staphylococcus pyogenes albus.* This is found in pus, also, but less frequently than either of the preceding. It is, however, similar in character and morphology, but the colony it produced has a white color.

4. *Micrococcus pyogenes tenuis.* This micrococcus is found in large, subacute abscesses. It is somewhat larger than the preceding.

5. *Staphylococcus cereus albus*, a rather large micrococcus found in pus, in masses or chains.

6. *Staphylococcus cereus flavus*, like the preceding, except that it produces a lemon-color, darker than that of the staphylococcus pyogenes citreus. It is very rare.

7. *Bacillus saprogenis* (No. 1), found in the follicles of the tonsil.

8. *Bacillus saprogenis* (No. 2) is found in the secretion of foul-smelling feet, and has its characteristic odor upon cultivation.

9. *Bacillus saprogenis* (No. 3), found in the pus of septic gangrene.

10. *Bacillus pyogenes*, found in the pus of abscesses about the anus.

11. *Streptococcus pyogenes*, found in the pus of erysipelatous-like processes.

12. *Streptococcus erysipelatis*, occurring in the lymph channels during erysipelas.

Test-tubes containing colonies of each of these varieties were exhibited, and at the close of the paper the Fellows were invited to inspect microscopically preparations of several of the forms that had been treated with double staining fluids.

Dr. Ernst narrated at some length, both as to method of procedure and as to result, a large number of inoculation experiments which he had made, as also the most approved methods of inoculating the culture material. A considerable number of diseases had been investigated by him, and culture experiments made from them. He stated that he had confined himself in his studies almost exclusively to the more chronic forms of disease. These all showed the presence of one or several varieties of microörganism, notwithstanding the

statement that is frequently reiterated, that such organisms are not found in chronic affections.

He then presented the following conclusions:

1. The cultivation experiments, continuing over so long a time, with the successful inoculations at the end of that time, indicate very plainly the continuance of the pathogenic powers of these organisms indefinitely. Their virulence is just as great at the end of the year and after being passed through a number of cultivations as when just taken from their original birthplace.

2. Their permanence of form is also well demonstrated. Their microscopic appearance and peculiarities of form under cultivation undergo absolutely no alterations.

3. In order to obtain either a modification of their pathogenic powers or of their morphological properties, if this is possible at all, some different methods of observation must be used than those which have been hitherto employed.

4. That the probabilities indicate that work in this direction is not likely to be attended with much success, (a) because no modifications have yet been observed, and (b) because prophylaxis furnishes the easiest and most generally applicable safeguard against the activity of these lower forms of life.

5. So far as experiments go, they do not show that any form of suppurative process in man is unattended by bacteria; that the inoculation into the lower animals of pure cultures of these bacteria is followed by more or less acute and extensive suppuration.

6. The conclusion of the dependence of the suppurative process upon the activity of bacteria, is very strongly supported by the most recent evidence of all of the best workers in the field of bacteriological research.

7. That very different clinical effects may be produced by the same organism, all these phenomena, however, coming under the head of inflammatory suppurative processes.

8. That the differences in the results produced by the same microörganism in different individuals depend upon causes outside of the bacterium itself.

9. That these differences are the result of differences in the amount of infectious material received in the system, and of the locality of the lesion by which it gains access, and also by variations in the individual condition—the "personal equation" being a very large factor in making up the sum of any results in bacteriological work.

DR. S. W. GROSS, in opening the discussion, remarked that the Association was deeply indebted to Dr. Ernst for his instructive and painstaking paper. The investigations which he has made confirm those which have been made by others, all of which go to show very conclusively that all acute suppurative processes are dependent upon vegetable organisms. In regard to this there can now be no doubt. The most interesting part of the paper, however, is that which relates to the chronic suppurative processes. We are all aware of the fact that up to the present time it has been denied that chronic suppurations are due to the same organisms which excite the acute suppurations. We will, therefore, have to credit Dr. Ernst with having made this discovery. It was not for him, the speaker thought, to comment further upon the paper, as he had given his time to practical surgery and had never made a study of bacteriology.

DR. J. S. BILLINGS remarked that some of the difficulties which come up in considering this subject, relating to the problem of cause and effect, are, first, there seems to be no definite relation between the number of organisms that is present and the effect that is produced; second, we are by no means assured of the specific difference between the various forms of microörganisms. Although they retain the same forms and produce the same results after a long list of cultures, it is a fact that a very slight difference in the chemical nature of the culture substance will produce a very marked difference in the organisms that flourish upon it. All forms of organisms will not flourish on the same soil. One organism, for example, will flourish only in the presence of an exceedingly small amount of zinc; another requires a small amount of tannic acid. There is one form which is found only on old beets, another which occurs only on the seventeen-year locust. Thus some forms are localized strictly to one form of media, and that a very rare form. He had investigated probably a thousand varieties of organisms from various sources, and had been impressed with the distinctness of a great many varieties in reference to the soil selected by them.

Microörganisms are further very markedly influenced by changes in the temperature of surrounding media. All these minute peculiarities must be considered, and the probability is that they constitute what Dr. Ernst speaks of as the "personal equation." We must have, along with the culture and inoculation methods, a chemistry of which we have as yet only the rudiments.

He referred briefly to the reported discovery by Gautier of leucomaines, as distinguished from the ptomaines. The only theory which we have at present to account for the evil consequences of the lower organisms in the body, is that much of their action depends not on the presence or action of the microörganisms, but on the impression made upon the nervous system, high up in the centres, either in the medulla or above it, by some production of the microörganism. We must have a chemistry developed, by the methods of which we shall be able to distinguish these alkaloidal (if that is the proper term to employ) forms, and thus to explain some of the effects produced by them.

It is believed, among other things, that the effect which is produced by microörganisms differs with the number of different varieties present in the body at one time, as well as by the order in which one organism follows another in its invasion of the body.

The speaker expressed preference for the use of the methods employed by Dr. Sternberg in inoculation experiments over those employed by Koch, since in the former a separate sterilized tube is used in the transfer of matter from the seat of disease to the culture substance, thus evading one source of contamination with extraneous matter.

In order to complete the chain of evidence that a particular microörganism is the cause of a definite disease, it is required that the organism be carried through a series of culture experiments to such a degree as will no longer leave it a matter of doubt that we have present only the microörganism without any of the extraneous matter or pus from the original wound. Unfortunately we are compelled to work almost exclusively with the microörganisms which produce the same disease in man and the lower animals. If the inoculation fails in the

lower animal, the experiment is at an end. This is the great difficulty in the investigation of yellow fever—we cannot find an animal subject to the disease. Further, all the experiments have been made upon a limited variety of animals, although it is probable that some of them must yet be repeated on other animals, as monkeys, which will make it an expensive piece of work.

Dr. Senn expressed full accord with the conclusions drawn by Dr. Ernst. He desired further only to refer to a few of the conditions found within the body which predispose to infection, or that may serve, in other words, as culture media for these germs. First, we have in cases of infection a development of germs at the point of infection, or at a distant point in direct anatomical connection with the point of infection. Further, independent of visible or tangible infection, we must conclude that infection takes place from within—that is, the germ is introduced into the circulation and at some point becomes localized. It is an important topic for the surgeon to consider how he may prevent the entrance of germs, or, after their entrance, to preserve such conditions as will prevent their development. The first condition which predisposes to the development of microörganisms within the body is a derangement of the capillary circulation. We all know that osteomyelitis generally affects young individuals, the microorganisms invading the long bones, near the osteal cartilages. It is because we have to deal in this locality with a large number of minute bloodvessels, with imperfectly formed walls and imperfectly developed bone, all of which especially favor the changes that are produced. The same organism also attacks the medulla of the bone, because, as has been demonstrated, the medulla is simply an excavation, exceedingly rich in minute bloodvessels with delicate walls. Germs passing along perfect bloodvessel walls become arrested at some point which favors local congestion and engorgement.

The second condition favoring the development of germs is a traumatism. A traumatism produces a medium for the germs to grow upon, just like that of an artificial culture substance. In this way localization is determined.

Another condition favoring the development of microorganisms is the presence of antecedent pathological products. The germ of tuberculosis has no tendency to produce suppuration, and when suppuration occurs in a tubercular focus we know certainly that it is due to the presence of another variety of organism which has become engrafted upon a tubercular basis.

As surgeons, we must endeavor to prevent suppuration, first by endeavoring to prevent inoculation; and second, by guarding against circumstances favorable to the development of the microörganisms.

Reference was made to the experiments of the speaker on the pancreas, to be reported in the afternoon. The most favorable circumstances for the occurrence of suppuration he had been able to find were cases in which he had left portions of the devitalized pancreas in the abdominal cavity. While it is not to be doubted that germs are present in every instance of suppuration, it is as certain also that the leaving of a portion of devitalized pancreas in the cavity provides a suitable soil for the development of these germs.

Dr. Ernst has stated that in the culture experiments the microörganisms possess the same vitality after a succession of cultures as when taken from their original soil. This fact is illustrated also in certain diseases, as in osteomyelitis, where we have sometimes a redevelopment of the disease after as long as twenty or thirty years of quiescence. During this period of health the organisms lie dormant in the body until some favorable influence calls them into activity.

Dr. Ernst closed the discussion by thanking the Association for the interest manifested in his investigations. He further defended his use of Koch's inoculation syringe, on account of the ease with which it is cleaned and rendered aseptic, as well as its convenience for measuring the quantities of fluid used.

A vote of thanks was extended to Dr. Ernst for his able and interesting paper.

Dr. David Prince, of Jacksonville, Ill., read a paper on

A PLAN FOR ATMOSPHERIC PURIFICATION FOR SURGICAL AND FOR HYGIENIC PURPOSES.

This was an improvement on that presented by the same author one year ago. A criticism has been made to the effect that no matter how perfectly the floating elements might be removed, yet the air of the room would become contaminated by emanations from the patient, the surgeon, his assistants, and the spectators, at the time of the operation. That criticism is met in the present plan by an arrangement for blowing upon the portion of the body to be the seat of operation a column of air which has undergone a special washing by means of a spray, and which must carry away from the wound any floating materials which may have been set free from the bodies of the people in the room. The water used for washing the air should be a solution of mercuric bichloride.

A CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Dr. C. H. Mastin, of Mobile, at the executive session of the first day, presented a memorial setting forth that in view of the fact that there are a number of special medical organizations now in existence in the United States, each having for its aim and attainment the advancement of the special department of medicine for which it was organized; and since the members of said special societies are of the representative men of the profession in America, many of whom are, at the same time, fellows or members of several of these special societies, which double membership, if it may be so expressed, necessitates them—if desirous of attending two or more of the meetings of these societies the same year—to make as many separate trips from home, and often with much loss of time to themselves and inconvenience to their patients. Therefore, it appears necessary that some arrangement should be made with the different societies as to a uniform time and place of holding their sessions, so that those members who wish to attend the meetings of more than one association may be enabled to do so without useless expenditure of money, or unnecessary loss of time.

An extended correspondence, together with personal conference with many of the most prominent of the fellows of this and other associations, has disclosed the fact that there is a decided and growing inclination to unite the various societies into a common whole, whereby it

would become a general organization, representative of the various special departments of the profession in America.

The plan proposed, and which is offered for the consideration—and, it is hoped, approval—of the Fellows of the Surgical Association, is to unite the following named associations into a Congress based upon the outlines which are now to be explained: 1. American Surgical Association; 2. American Ophthalmological Association; 3. American Otological Association; 4. American Neurological Association; 5. American Laryngological Association; 6. American Gynecological Association; 7. American Dermatological Association; 8. American Climatological Association; 9. American Clinical and Pathological Association. These Associations to be united under the name and style of "*The Congress of American Physicians and Surgeons.*"

The plan of organization hereby submitted, and subject to any alterations or amendments which may be deemed wise and proper, is that each society will preserve its own name, constitution, and by-laws; elect its own officers and fellows; hold its own sessions apart from the others at the time and place of meeting; publish its own transactions; and do all other acts of which, by virtue of its constitution and by-laws, it has the inherent right to do, thus preserving its own autonomy.

The Congress to be composed of these special societies when in convention, and its meetings to be held annually in the city of Washington—the most appropriate place for the assembling of such an organization. The constitution and by-laws of the Congress to be formed by a committee composed of a like number chosen from each separate society. The opening session of each annual meeting of the Congress to be devoted to such general business as may pertain to the interest of the associations as a whole. The Congress to be presided over by a president, elected annually, and who shall deliver the opening address upon the first day of the session. The manner of choosing the president to be as follows: by a nominating committee composed of one member elected from each special association, or otherwise, as may be determined upon by the special society itself; this committee nominating one or more candidates for the office of president, whose election is to be by ballot on the last day of the annual session, and in a convention of all the societies assembled. The presidents of the special societies to become, *ex-officio*, vice-presidents of the Congress. Membership in the Congress to be acquired only by virtue of fellowship in one or another of the special associations. Other officers of the Congress to be elected or appointed as may hereafter be determined upon by the associations in convention.

These are the outlines of a union proposed for the consideration of the Fellows of this Association, which, if it should meet their approval, can be submitted to the action of the societies which have been mentioned. It was suggested that the Chair appoint a Committee of five to bring the subject before the next special association which meets this spring or coming summer, and which, in the event of a concurrence of opinion on the part of said society, shall act in concord with their committee appointed to confer with the other societies, in the order of their meetings. This enlarged committee to report at a convention of all the societies, which shall be requested to hold their next annual meetings at the same dates in the month of June, 1888, in the city of Washington.

To avoid any confusion as to the time of next meeting, each society (this year) could adjourn to meet in June, 1888, leaving the date to be fixed by the enlarged committee after their work of conference had been finished, it then being only necessary to apprise the secretaries of the respective associations, who will give notice to the various fellows or members.

This proposition is the result of calm consideration, and has been approvingly endorsed by quite a number of the representative gentlemen of the profession, both in and out of this special Association.

Dr. Mastin disclaimed any intention of offering any obstacle or opposition to any other association in America. The plan proposed is simply to unite into one great body the already existing special societies, and it is proposed from the honest conviction that such a union will prove of inestimable benefit to them, individually and collectively.

This proposition was referred to a Special Committee, consisting of Drs. J. Ewing Mears, Christopher Johnston, and W. T. Briggs.

The above Special Committee reported that it viewed with great satisfaction the perfection of a plan through which the meeting of the Associations above named in the city of Washington at the same time of the year, may be accomplished, and the meeting of all the associations in general assembly on such days as may be determined, for the purpose of delivery of addresses upon general subjects in medicine, such meetings to be held without any formal organization through which the associations meeting will sacrifice their autonomy.

To accomplish these purposes the Committee offered the following resolution:

Resolved, That a committee of five Fellows of this Association be appointed, which shall be authorized to confer with committees of other associations interested in the adoption of a plan of a convention as hereinbefore stated, and report upon the same at the next meeting for the action of the Association.

The resolution was adopted, and the following committee was appointed in accordance therewith: Drs. C. H. Mastin, of Mobile, Chairman; C. T. Parkes, of Chicago; J. Ford Thompson, of Washington; N. Senn, of Milwaukee; and J. Ewing Mears, of Philadelphia, Secretary.

AFTERNOON SESSION.

CHOLECYSTOTOMY.

DR. C. T. PARKES remarked that as he had presented, one year ago, several cases of successful cholecystotomy, he desired to-day to report two cases which had a fatal ending. They demonstrated the fact that obstruction of the gall-duct is not always amenable to surgical treatment. They also illustrate the difficulties the surgeon has to deal with when the bladder is atrophied or when it is not in a state of distention.

Case I. was that of Mrs. W., who applied to him for relief from gallstones, from which she had suffered for six years. The patient was of a robust constitution, but had an icteric hue, and her stools were usually of a clayey color. Some months after he first saw the patient, she had a severe attack of pain coming on after

a horseback ride, and lasting for several hours, without his being able to afford relief by the administration of morphia. Finally the stones were passed, as was proved by their discovery in the stools, and the trouble was again at an end.

After consulting many physicians, at home and abroad, she finally consented to have an operation performed. An incision of considerable length was made, but no gall-bladder was seen through the opening, and the intestines were with difficulty kept out of the incision. Finally the gall-bladder was discovered closely adherent to the under surface of the liver, much lengthened and considerably thickened. Several stones could be recognized in the lower portion of the bladder. The common duct could be felt, thickened, twisted and rolled like a hard cord. The largest stone was felt tightly compressed by the duct-walls. The bladder could not be brought into the external opening, but was at last loosened from its attachment to the liver, and was then brought to view. Silk sutures were passed through the fundus of the bladder on either side of the median line, then through the margins of the abdominal incision and the whole firmly secured. The tissue intervening between the sutures was then divided. The wall was fully half an inch in thickness. The stones were now without difficulty recognized through the opening, and forty-three were removed. The opening in the gall-bladder was first closed, then that in the abdominal wall, the abdominal cavity having been thoroughly cleansed. As having an important bearing on the final termination of the case, he added that the anæsthetic acted badly from the first, producing vomiting immediately after its first administration. The pulse was 130 when the patient was put to bed after the operation, and she never rallied. At the end of thirty hours the first dressing had to be removed from the wound on account of its becoming saturated with extravasated bile.

Case II. he had seen in association with Dr. Gunn, who had permitted him to report the case in connection with the one just narrated. The patient was a man twenty-five years of age. He suffered from attacks of severe pain in the hepatic region every week or two. He was emaciated to an extreme degree. Although the stools have been repeatedly examined, gall-stones have never been discovered. An incision four inches in length was made over the region of the gall-bladder. The liver was at once exposed, but the bladder was not discovered. But close to the locality in which it should have rested was discovered a firm, hard cyst. It was too near the large bloodvessel to admit of any surgical interference. It appeared to press so firmly on the gall-duct as to prevent the passage of bile through it. The patient died twenty-four hours after the operation. Autopsy revealed the gall-bladder much atrophied and empty. A stone was found completely obstructing the passage through the duct. A small abscess was also found immediately by the side of the duct, accounting for the cyst that had been felt.

DR. W. H. CARMALT reported a case which had come under his observation and which resembled to a considerable extent that just narrated. A woman, thirty-seven years of age, apparently healthy and robust, consulted him on account of the following history. She had suffered for several years from an ill-defined dragging sensation in the right hypochondriac region. The woman had borne several children. On examination, a tumor was discovered, and a scar over the region in which she felt the peculiar sensation. This she accounted for by the statement that in March, 1883, she had applied for treatment at the clinic of von Bergmann, of Berlin. She was operated upon and told that her right kidney had been stitched to the side. While yet in the hospital, she added, she was attacked with a fit of sneezing, and that immediately after that the symptoms of dragging returned. She was told that the kidney had broken loose. She remained in Germany for some time afterward, then joined her husband in this country, in the early part of 1885. When she came under observation the dragging had become almost unbearable. She had been told in Germany that she could have her kidney removed, and she came to him as a result of that advice. He found her a fairly strong, hard-working woman; but she had the most remarkably pendulous abdomen he had ever seen—she always wore a supporter. The tumor was visible on inspection, and it almost entirely hindered her from work.

It was freely movable and changed its position spontaneously as she assumed the lying or standing posture. It could also be pushed about in the abdomen with slight manipulation, and could be readily palpated. She had never had any symptoms of gastric irritation. There was no history of dyspepsia, gall-stones, or other disturbance of the biliary functions. Her urine was examined daily for a month without the discovery of anything abnormal.

The patient having been fully anæsthetized, he made an incision four inches in length over the tumor, immediately external to the rectus muscle. When the abdominal cavity was opened, he found himself face to face with a tumor which clearly was not a kidney. It was of a light pink color, fluctuating, and situated just below the border of the liver. The intestines protruded through the incision, but were without much difficulty retained. Upon examination the tumor proved to be a dilated gall-bladder. Four ounces of inspissated mucus were withdrawn by the aspirator: the cyst then flattened down and stones were discovered in it. After suturing the bladder and opening it, as described by Dr. Parkes, he found a stone as large as the end of his thumb. Four others were discovered after this one had been removed, two of which were so tightly lodged that they were crushed in extraction. After thorough cleansing of the bladder, the incision was closed with catgut, the Lembert suture being used. Every precaution had been made previous to the operation to make the room and instruments aseptic. After closure, the wound was dressed with borated cotton. The wound united by first intention except at one point, where an iron-dyed suture was used, and the woman recovered without an elevation of temperature above 101.2°. She is now in perfect health and able to attend to her household duties. The right kidney was found in its normal position.

DR. PARKES remarked that this case confirmed what he had just said with regard to the difficulties encountered in case the gall-bladder is not distended.

DR. N. SENN, of Milwaukee, then read a study of

THE SURGERY OF THE PANCREAS, AS BASED UPON EXPERIMENTS AND CLINICAL RESEARCH,

and presented the following conclusions:

1. Restoration of the continuity of the pancreatic duct does not take place after complete section of the pancreas.

2. Complete extirpation of the pancreas is invariably followed by death, produced either by the traumatism, or by gangrene of the duodenum.

3. Partial excision of the pancreas for injury or disease is a feasible and justifiable surgical procedure.

4. Complete obstruction of the pancreatic duct uncomplicated by pathological conditions of the parenchyma of the organ, never results in the formation of a cyst.

5. In simple obstruction of the pancreatic duct the pancreatic juice is removed by absorption.

6. Gradual atrophy of the pancreas from nutritive or degenerative changes of the secreting structure is not incompatible with health.

7. Physiological detachment of any portion of the pancreas is invariably followed by progressive degeneration and atrophy of the glandular tissue.

8. Extravasation of fresh, normal pancreatic juice into the peritoneal cavity does not produce peritonitis, but is promptly removed by absorption.

9. Crushed or lacerated pancreatic tissue is removed by absorption, provided the site of operation remains aseptic.

10. Complete division of the pancreas by elastic constriction is never followed by restoration of interrupted anatomical continuities.

11. Limited detachment of the mesentery from the duodenum, required in operations upon the pancreas, is not followed by gangrene of the bowel.

12. In all operations upon the head of the pancreas the physiological attachment of the peripheral portion of the gland should be maintained by preserving the integrity of the main pancreatic duct.

13. Partial excision of the splenic portion of the pancreas is indicated in cases of circumscribed abscess and malignant tumors, in all cases where the pathological product can be removed completely without danger of compromising pancreatic digestion or inflicting additional injury upon important adjacent organs.

14. Ligation of the pancreas at the point or points of section should precede extirpation as a prophylactic measure against troublesome hemorrhage and extravasation of pancreatic juice into the peritoneal cavity.

15. The formation of an external pancreatic fistula by abdominal section is indicated in the treatment of cysts, abscesses, gangrene, and hemorrhage of the pancreas due to local causes.

16. Abdominal section and lumbar drainage is indicated in cases of abscess or gangrene of the pancreas where it is found impossible to establish an anterior abdominal fistula.

17. Thorough drainage is indicated in cases of abscess and gangrene of the pancreas with diffused burrowing of pus in the retroperitoneal space.

18. Removal of an impacted pancreatic calculus in the duodenal extremity of the duct of Wirsung by taxis or incision and extraction, should be practised in all cases where the common bile duct is compressed or obstructed by the calculus, and death is threatened by cholæmia.

19. In such cases the principal source of danger, extravasation of bile into the peritoneal cavity, should be avoided by preliminary aspiration of the dilated bile duct, accurate closure of the visceral wound with fine silk sutures and absolute physiological rest of the organs of digestion during the time required in the healing of the visceral wound.

The paper will appear in full in *The American Journal of the Medical Sciences.*

During Executive Session the following were elected

HONORARY FELLOWS:

Sir William McCormac, Surgeon to St. Thomas's Hospital, London, England; Prof. Henry J. Bigelow, of Boston.

The following were also elected

FELLOWS:

H. H. Mudd, M.D., Professor of Surgical Anatomy and Clinical Surgery, St. Louis Medical College; Joseph Ransohoff, M.D., Professor of Descriptive Anatomy and Clinical Surgery, Medical College of Ohio, Cincinnati.

OFFICERS FOR THE ENSUING YEAR:

President.—Hunter McGuire, M.D., of Richmond.

Vice-Presidents.—T. F. Prewitt, M.D., of St. Louis, and J. W. S. Gouley, M.D., of New York.

Secretary.—Jacob R. Weist, M.D., of Richmond, Ind.

Treasurer.—P. S. Conner, M.D., of Cincinnati.

Recorder.—J. Ewing Mears, M.D., of Philadelphia.

Council.—Drs. Moses Gunn, of Chicago; R. A. Kinloch, of Charleston; Hunter McGuire, of Richmond; John S. Billings, of Washington, D. C.; and L. McLane Tiffany, of Baltimore.

Place and Time of Next Meeting.—Washington, D. C., second Wednesday in May, 1887.

Adjourned.

(To be concluded.)

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

Eighty-eighth Annual Meeting, held at Baltimore, April 27, 28, 29, and 30, 1886.

(Specially reported for THE MEDICAL NEWS.)

WEDNESDAY, APRIL 28.—SECOND DAY.

DR. E. G. WATERS offered the following resolution concerning

UNLICENSED PRACTITIONERS:

Resolved, That a committee of three, consisting of the present President as Chairman and two others whom he may select, be appointed to take into consideration all the legal questions growing out of the President's Address in relation to unlicensed practitioners in Maryland, with power to act in all matters which may be necessary to bring said question to a legal adjudication, provided said committee, before action, report to the Medical and Chirurgical Faculty at a meeting called for the purpose. Adopted by a vote of 26 to 16.

The committee was then appointed under the resolution, as follows: Drs. E. G. Waters, John R. Quinan, and B. B. Brown.

THE ANNUAL ORATION

was then delivered by COL. GEORGE E. WARING, JR., of New York, who chose for his subject, *The Removal and Destruction of Organic Wastes.*

In his recent address as President of the Sanitary Institute of Great Britain, Dr. de Chaumont, of Netley Hospital, gave a startling array of statistics, showing the degree to which fevers had lost frequency and fatality under the better sanitary arrangements prevailing throughout the British army and throughout the community.

Now this improvement means emphatically improved drainage and excreta removal; but the fact that we still lose some five or six thousand lives per annum in England and Wales alone, shows how much still remains to be done.

In the army we formerly suffered much from fever, even at home; forty years ago the deaths were 2.4 per 1000, and they formed 14 per cent. of the total deaths. In 1860 the number fell to about one-fourth—only 0.64 against 2.04, and 6.4 per cent. of the total deaths against 14. In 1883 the number had still further fallen to 0.25 per 1000 (0.24 enteric), and the ratio to total deaths 4.1 per cent; or, taking enteric alone, 3.9 per cent. This compares favorably with the civil returns of males of the same age, among whom the ratio is 0.301 per 1000, or 25 per cent. higher than the army ratio.

The proportion of fever deaths (enteric) to total deaths is always the same, viz., 4.12. Now this gratifying improvement can be distinctly traced to two main things, viz., improved drainage and improved water supply. With these, enteric fever soon disappears.

Dr. Billings, in his census reports, makes the estimate, and he considers it a very moderate one, that the number of unnecessary deaths in the United States—that is, the deaths due to strictly preventable diseases—aggregate over 100,000 per annum.

The preventive measures by which these diseases may be controlled are largely, of course, in the hands of the municipal authorities, who have control of the sanitary regulations of towns and cities; but there is much that is beyond their ken which comes more directly under the eye, and under the control of the physician, who is not only the natural sanitary adviser of the individual and of the family, but who also, in his corporate capacity, is the great instructor and hand strengthener of municipal health authorities.

The problem of removing and of putting beyond the power to do harm—that of destroying organic wastes—is a large one, and one which has been taken up almost *de novo* during the active life of men who are still active in the work.

The main problem, therefore, is the simpler one of bringing our waste matters as rapidly and inoffensively as possible, into such a condition and with such surroundings that they may become subject to putrefaction, and similar processes of decomposition. Organic wastes deeply embedded in compact wet clay, are preserved indefinitely, but the moment we admit air, that moment their dissolution is begun, and the stability of their organic character is doomed. The more enlightened sanitarians of the world are in accord in believing that the only sure and safe way out of our difficulty lies in the complete removal of all organic waste away from the neighborhood of habitations, and its disposal under such circumstances as will lead to its rapid decomposition. Its removal assures the safety of the community by which it was produced. Its destruction assures the safety of those into whose presence we may have sent it. *Speedy and complete removal, with speedy and complete decomposition*, is the formula by which all our work should be guided.

A system of house drains removes the sewage from the houses, the sewers remove it from the town, and we now are to consider only the question of ultimate destruction. The process to be adopted toward that end, where suitable facilities are available, is one of the following:

First. To deliver the whole mass into a river or body of water sufficient, not only to dilute it, but to furnish the abundant supply of oxygen needed for rapid and complete decomposition.

Second. To deliver it over the surface of land capable of absorbing it.

Third. To discharge it on the surface of very porous, gravelly, or sandy ground.

In both of the methods of soil treatment, the deposited organic matter is destroyed by bacterial action.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, April 7, 1886.

The President, S. Weir Mitchell, M.D., in the Chair.

Dr. Thomas G. Morton made some remarks on

LANOLIN,

and exhibited a few specimens of this preparation from the wool of sheep. Those who have used it have been much pleased with its employment in the preparation of ointments for external application. It can be readily rubbed into the skin and produces no irritation, and, therefore, would probably be valuable in massage. It is probable that substances combined with lanolin will be more readily absorbed than if prepared with other bases.

One of the remarkable properties of lanolin is that it can be readily combined with water. It takes up more than its own weight of water. Unna states that cooling ointments should contain large quantities of water. Dieterich, with a view to determine the quantity of water taken up by different salve bases, experimented with twenty-one different bases at a temperature of 15° C., taking for each experiment 100 parts of the base. His results were as follows: Cosmoline took up 4 parts of water; lard, 13; benzoinated lard, 17; and lanolin, 105.

Lanolin, as it now appears in the market, is a perfectly neutral base, and hence is not apt to decompose any medicament which may be added. Lassar experimented with it on 400 patients, and states that lanolin is readily absorbed by the skin, does not produce any irritation, and permeates the lower layers. Bachmann rubbed a ten per cent. iodide of potassium ointment, made with lanolin, into the skin for five minutes. After the lapse of half or three-quarters of an hour, iodine was detected in the urine. The elimination of the iodine by the urine continued for fourteen days after several applications of the ointment. Lanolin was used by the ancients, and is mentioned by Ovid, Heredot, Plinius, and Aristophanes.

Liebreich patented his process in the United States in January, 1883, and it is concisely stated as follows:

"He takes the suds from the washing of wool in the

mills, submits it to the action of a centrifugal machine which separates the soapy, oily suds from the dirt associated therewith, decomposes the suds by an acid, whereby the acid and the saponifying alkali unite and the saponified wool-fat is separated, combined with about 100 per cent. of water; this is then thoroughly washed with cold water, then heated so as to separate the water and the wool-fat, and again combined with a definite proportion of water, and lanolin is the result.

"Or, he treats wool with alkaline water, producing his suds in that way, and then proceeding as already outlined.

"A much quicker and less complex way of making the article is to treat the wool directly with petroleum benzine; distil off the benzine, and the wool-fat remains; combine this with a proper proportion of water, and lanolin results. In his patent specifications, Liebreich speaks of this process, but says it is objectionable because of the difficulty of getting rid of the benzine odor.

"Merino wool, clipped without the sheep being washed, contains, it is said, the enormous proportion of sixty per cent. of this fat.

"When it is considered that all wool averages about forty-five per cent. of its weight of this fat, that it has all to be removed before the wool can be manufactured into fabrics, that up to this time it has had no value, that the process for its extraction is not a very expensive one, and that lanolin is thirty per cent. water, it appears reasonable that lanolin will certainly be as cheap as lard as soon as competition in methods of extraction and in supplying have an opportunity to affect its price."

Dr. Keen remarked that he had used lanolin in several instances during the last week or ten days. One case was that of a child, eight years of age, with an enlarged gland under the jaw, the size of an English walnut. He prescribed iodine, two grains to the drachm of lanolin. He saw the child a week ago, and the swelling had almost entirely disappeared. This was a more rapid disappearance than he had ever seen from other iodine applications. This is the only case in which he had any results, although he had used it in a number of instances, and liked it very well.

NEWS ITEMS.

American Cholera Commission to India.—Dr. E. O. Shakespeare, of Philadelphia, who was commissioned to study the cholera epidemic in Spain and Italy, has been directed to proceed to India to study the disease in its home.

American Laryngological Association.—The eighth annual Congress of this Association will be held in the Hall of the College of Physicians of Philadelphia, on Thursday, Friday, and Saturday, May 27, 28, and 29, 1886. Morning sessions, 10 to 1; afternoon sessions, 3 to 5. The profession is cordially invited to attend.

Chair of Physiology in the University of Pennsylvania.—Dr. E. T. Reichert, formerly Demonstrator of Physiology in the University of Pennsylvania, has been elected to the Chair of Physiology in that institution. Dr. Reichert delivered the course of lectures in this branch in the session of 1885–86, vice Professor Harrison Allen, resigned.

American Climatological Association.—The third annual meeting of the American Climatological Association will be held in Philadelphia, Monday and Tuesday, May 10 and 11, at the Hall of the College of Physicians.

Commencement of the Medical and Dental Departments of the University of Pennsylvania.—At a public Commencement held Saturday, May 1, 1886, at the American Academy of Music, the degree of Doctor of Medicine was conferred by William Pepper, M.D., LL.D., Provost, upon one hundred and eighteen gentlemen; after which, an address was delivered by Joseph Leidy, M.D., LL.D., Professor of Anatomy. On the same occasion the degree of Doctor of Dental Surgery was conferred upon forty-one gentlemen.

Death of Professor Bouchardat.—The death of Dr. Bouchardat, for over thirty years Professor of Hygiene in the Paris Faculty, is announced.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 1, 1886.

Wieber, F. W. F., *Assistant Surgeon.*—Detached from Revenue Steamer "Vermont," and ordered to the "Hartford."

Tracy, Elmer C., *Assistant Surgeon.*—Ordered to the "Vermont."

Waggener, J. R., *Passed Assistant Surgeon.*—Detached from the "Hartford," and ordered to the "Iroquois."

Bransford, J. F., *Surgeon.*—Detached from the "Iroquois," to proceed home and await orders.

Kite, Isaac W., *Assistant Surgeon.*—To duty at Naval Hospital, Brooklyn, N. Y.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM APRIL 27 TO MAY 3, 1886.

Town, Francis L., *Major and Surgeon.*—Granted leave of absence for eight months, with permission to go beyond sea, to take effect when his services can be spared by his Department Commander.—*S. O. 101, A. G. O.*, April 30, 1886.

Corson, Joseph K., *Captain and Assistant Surgeon.*—Granted ten days' extension of leave of absence granted in Order No. 79, April 15, 1886, Jefferson Barracks, Mo.—*S. O. 97, A. G. O.*, April 26, 1886.

Wilson, Wm. J., *Captain and Assistant Surgeon* (Plattsburg Barracks, N. Y.).—Granted leave of absence for one month, on surgeon's certificate of disability.—*S. O. 25, Division of the Atlantic*, April 27, 1886.

Bonham, Robert B., *Captain and Assistant Surgeon.*—Ordered from Department of Texas to Department of Dakota.—*S. O. 97, A. G. O.*, April 26, 1886.

Wilson, George F., *First Lieutenant and Assistant Surgeon.* Ordered for duty at Fort Shaw, Montana Territory.—*S. O. 37, Department of Dakota*, April 26, 1886.

Polhemus, A. S., *First Lieutenant and Assistant Surgeon.*—Relieved from duty at Pressidio of San Francisco, Cal., and ordered for duty as Post Surgeon at Fort Halleck, Nevada.—*S. O. 28, Department of California*, April 26, 1886.

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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AMERICAN MEDICAL ASSOCIATION.

THIRTY-SEVENTH ANNUAL MEETING, ST. LOUIS, 1886.

THE ADDRESS IN MEDICINE.

Delivered May 5, 1886.

BY JAMES T. WHITTAKER, M.D.,

PROFESSOR OF THEORY AND PRACTICE OF MEDICINE, MEDICAL COLLEGE OF OHIO.

SOME POINTS IN BACTERIOLOGY.

"Vere scire est per causas scire."—BACON.

THERE are three planes in the history of medicine. The first is the study of the symptoms or appearance of disease. It is the period of the infancy of medicine. It is naturally the most crude period, and all irregular medicine still rests upon this plane. It gave us a pharmacopœia, and the highest expression of it made of the practice of medicine an art. The second plane begins with the observation of the effects or lesions of disease. It made us familiar with the natural history of disease, and thereby nearly destroyed the pharmacopœia. The third is the present plane, upon which is being prosecuted investigations into the cause of disease. Investigators have just set foot upon its threshold. When it shall have been fully attained, medicine will be entitled to a place among the sciences which are called exact.

The progress made in this direction during the past year so completely overshadows all other work in range and promise of practical value as to justify in this report, to exclusion of everything else, a brief review of the conclusions reached.

The etiology of acute infections is comprised under the single term

BACTERIOLOGY,

the bacterium having come, in the course of time, to include all pathogenic as well as many innocent micro-organisms.

The conclusion reached by the mycologists of the present day is that, under natural circumstances, micro-organisms show themselves, as a rule, not with variations, but in permanent forms, but that disease is not produced so much by a distinct and definite form as by a distinct and definite germ.

On the other hand, most pathogenic microörganisms are indigenous to certain definite places. These are the epidemic germs. Thus, the mouths of the Ganges and Brahmaputra are the centres of cholera, Lower Egypt of the plague, the Antilles of yellow fever, Ireland of typhus. But just as plants of higher organization may be transplanted to other soils, so may original endemics assume epidemic and finally pandemic proportions or extent. Thus, smallpox first showed itself in Germany in 1493, an importation from the Netherlands, but it was not until 1527 that it was transported to our continent, making its appearance with wholesale slaughter in Mexico, and gradually extending thence over the whole of North America. Scarlet fever, which was first heard of in Arabia, was not seen in our country till 1735. It reached Iceland in 1827, South America in 1829, Greenland in 1847, and Australia in 1848. Measles had not been carried to Australia up to the beginning of our own decade. Cerebro-spinal meningitis, in all respects the most irregular of all epidemic diseases, first sprang up in Geneva, and first fell upon our country in 1806. Cholera was unknown with us until the memorable year of 1832. Even tuberculosis, which has long since assumed pandemic extent, was, as Liebermeister has shown, not originally ubiquitous, as it remained unknown to our own Indians, to the aborigines of Australia, and the negroes of Central Africa until carried to them by more civilized races. There is, therefore, no longer question of the spontaneous, or so-called autochthonous, origin of infection. Typhoid and typhus fevers, dysentery, and diphtheria, pyæmia, erysipelas, and puerperal fever, appear only at times when lurking germs and spores from previons cases find favorable conditions for development or after fresh importations of the disease.

The introduction into the blood of a specific germ begets the specific disease, and the fact that each one of the acute infections has always presented the same characteristics proves conclusively that no change has occurred in the properties or peculiarities of the specific cause. For so long as observations have been recorded, measles, for instance, has always been the same disease, with the same period of incubation, the same prodromata, and the same eruption, the same complications, and the same termination. New interpretations of the phenomena of the acute infectious diseases have been made from time to time, more searching means of study have developed new signs, but the characteristic features of each of the acute infections have always remained the same. The accurate observations rendered possible by the adoption of the solid culture soil are in thorough accord with these conclusions. The essential nature of pathogenic bacteria is not changed by alterations in the soil or other surroundings. Bacteria may be shrivelled or dwarfed or reproduction checked by lack of oxygen, unsuitable nutrition, improper temperature, but they may not be changed in nature. Up to the present time, it has been found impossible to convert innocent into pathogenic forms, and the observations recorded which seem to lend support to the transmutation theory, as by Büchner, Bastian, Nägeli, and others, have been shown to rest upon inaccuracies or impurities.

ATTENUATION NOT CHANGE OF NATURE.

But the case is very different with the converse of this view, which opens up one of the most interesting studies in mycology. Is it possible to deprive the pathogenic forms of their pathogenic properties? The belief is still maintained, by some clinicians at least,

that vaccinia is smallpox which has lost its virulence by passing through the body of a cow, and the question of attenuation of the so-called virus of virulent disease, with the view of inoculating it in milder forms, occupies the attention of prominent mycologists at the present time. Within the present decade this question has been answered in the affirmative with reference to the virulent bacteria of charbon. For it has been discovered by Pasteur and by Koch that under the influence of high temperature and various chemical agents, the bacteria of charbon may be made to suffer loss of their pathogenic properties, while they still retain all other characteristics, including the capacity of reproduction. Pasteur claims to have effected the same attenuation in the case of hydrophobia. But these observations do not support the view that any change of nature has been experienced in this way. Bacteria thus treated are not changed into innocent forms. They have simply lost the physiological property of infection. Baumgärtner puts it pertinently when he says it is not a question of changing poisonous into innocent snakes, but of extracting the poison fangs from animals which otherwise remain the same.

THE MORPHOLOGY OF BACTERIA

is not simply a question of size and shape. The term is extended to include also motion, color, and affinity for color, as well as the manner of growth or disposition of the colonies. In many cases such distinctive peculiarities are already demonstrated as to render it possible absolutely to diagnosticate disease in life by one or more of these points. As Hueppe says, this is the most interesting question for the clinician. May we make a differential diagnosis from morphology alone?

Bacteria vary greatly in both length and breadth, but are, for the most part, so small as to be on the confines of the visible with the microscope. In fact, it is chiefly by reason of the recent improvements in the illumination and amplifying power of the microscope, the oil immersion lens, and Abbe illuminating apparatus, that they have been rendered visible at all. Some of them are to be seen only with a power of 700 diameters, which is the amplification generally used in the study of all microörganisms. Mycologists speak of micro-, meso-, and megacoccus, of the micrococcus prodigiosus, and of the bacillus subtilis, but these are all, of course, relative terms. Pathogenic microörganisms vary in length from 1 to 40 mikromillimetres, and in breadth from 0.5 to 7 mikromillimetres. Many micrococci are too minute to admit of any accurate measurement. The largest microörganism is the spirillum, which may reach the length of 0.2 of a millimetre. Perhaps a better idea of size can be conveyed by comparison with a familiar object. The bacillus tuberculosis, which occupies in respect to size a median place, varies in length from $\frac{1}{2}\frac{1}{00}$th to $\frac{1}{8}\frac{1}{500}$th of an inch, the smaller measure being the average diameter of a corpuscle of human blood.

Although some distinction may be made between pathogenic and innocent organisms by their size and shape, the most skilful mycologist would hesitate to express an opinion based on these points alone. But microörganisms may look alike and yet be very different. Spermatozoids of different animals may present the same general appearance, but they are endowed with very different properties. We remain as yet at too great a distance to make out the distinguishing features even of innocent and dangerous microörganisms. As Birch-Hirschfeld remarked, it would be impossible to declare of a man standing on the spire of the Strassburg Cathedral, whether he was black or white, and even the same configuration in every particular would furnish no more definite criterion than in the case of full-grown serpents of the same appearance some of which only are poisonous. We await now with interest the revelations which are to follow the experiments with the new lens worked out by Prof. Abbe, which, it is claimed, already exhibits differences in the structure of bacteria.

The general construction of bacteria, so far as it can be studied, is simple enough. Bacteria are cells because they are constituted, grow, and divide like cells, and although nuclei have not yet been discovered in them, they are in this regard not unlike other low forms of vegetable cells. The protoplasm of the cell seems homogeneous in the minutest, but more or less granular in the larger and more distinctly visible forms. It shows the same reactions and takes up the same colors as other protoplasmic bodies, differing, as they do, in different forms. The cell is invested with a membrane which may be separated from the protoplasm by agents, like the alcoholic solution of iodine, which shrink the protoplasm. The membrane assumes prominence also at the period of spore formation. It is in most cases firm and closely apposed to the contents, while in the spirochætæ it is extensile and elastic. Dark, transverse lines forming across the protoplasm indicate the division of a bacterium into daughter cells, which separate in the process of reproduction. Hence the name schizomycetes. A billiard ball, a lead-pencil, and a corkscrew indicate in the homely comparisons of de Bary the chief varieties of bacteria as micrococci, bacilli, and spirilla.

DISTINCTION OF BACTERIA.

A glance would reveal the difference between a bacillus and a spirillum, and there could be no question of mistaking a micrococcus for either. In many cases even gross morphological resemblances could create no embarrassment in the mind of the practitioner. What possible doubt could exist, for instance, as between the comma-bacillus of the stools and intestinal contents of cholera and the innocent comma-bacillus found in the mouths of healthy people? The condition of the patient decides it at once, or if there could still be a doubt, it would be dissipated with a knowledge of the fact that the cholera bacillus is not found in the mouth. But in many cases differences in form alone are too slight to be recognized by the clinician. In some cases these differences can be seen. Thus, the slight deviations between the forms of the bacilli of milzbrand and malignant œdema enable mycologists to separate diseases which are often confounded. But these distinctions may be made out only in the laboratories of experts. Hence, for practical use, appeal must be made to other factors in morphology. Thus, the bacilli of tuberculosis, syphilis, and leprosy closely resemble each other—that is, closely to the clinician, though coarsely to the mycologist. But the tubercle bacillus distinguishes itself from all other bacilli save one, by two peculiarities: first, lack

of affinity for all dyes—that is, the resistance it shows to colors; and, secondly, when it is colored with alkaline dyes, by the persistence with which it retains its color in the presence of mineral acids. This persistence is shown only by the bacillus of leprosy, but the bacillus of leprosy may be differentiated by the fact that it may be colored with Weigert's nucleus color (hæmatoxylin, alcohol, alum, āā 2 parts; distilled water, glycerine, āā 100 parts), which has no effect upon the bacillus tuberculosis. The colored bacilli of syphilis are decolorized by mineral acids. By the method mentioned, Gaffky discovered characteristic bacilli in the sputum of tuberculosis in 938 of 982 cases.

Considering the fallacies of the observations, and the stage of prephysical signs, it is safe to say that the time is close at hand when we shall no longer think of using the pleximeter and the stethoscope in the diagnosis of tuberculosis.

Only a skilled mycologist would detect the fine differences in morphology of the bacilli of cholera and cholera morbus, but any one would notice at a glance the difference in the funnel and cone or stocking-shaped colonies of the two varieties. As, however, the length of time that must necessarily elapse to make this observation precludes its practical value to clinicians, quicker conclusions can be reached by the physiological test—that is, the introduction of the germs, or matter containing them, into the stomachs of guinea-pigs. These animals are very susceptible to cholera morbus, but insusceptible to true cholera, without special preparations or precautions. Perhaps this test would be resorted to only in cases where doubt existed as to the commencement of an epidemic of Asiatic cholera.

The method in which the bacteria aggregate themselves in the process of growth in the culture soil, the process of colonization it would be called in the tissues of the body, or

THE FORMATION OF ZOÖGLŒA,

furnishes some, but uncertain information regarding the nature of the germ. Cohn thought at one time that the whole class of bacteria might be divided into two distinct species, one of which formed a mucus-like mass, the other fibrils or threads. These classes he proposed to designate as gleogenous or mucus-forming, and nematogenous or thread-forming families, but he was compelled subsequently to abandon the idea on observing the changes in the mode of growth in different soils and at different temperatures. Thereupon Koch observed that the formation of zoöglœa in the form of membranes or fibrils, squamous, dendritic, fenestrated, nodular, globular, circular, etc., immediately preceded the development of spores. Both Cohn and Koch soon reached the conclusion that while the form of the colony might serve to separate families and groups, estimates based upon such observations must be accepted with much reserve. But while it is admitted that the form of the zoöglœa varies in different soils, it is nevertheless true that a typical form is shown under the same conditions, a fact which, Hueppe remarks, essentially lightens a differential diagnosis. To give but one example, the bacillus anthracis may be macroscopically distinguished from the non-parasitic bacillus subtilis by the fact that the anthrax bacillus forms in its soil a flocculent deposit, while the bacillus subtilis develops a dry membrane upon its surface.

The development of bacteria does not differ from the higher vegetations in requiring the necessities of life: food, heat, oxygen, water, etc.

The question of food is connected with the subject of cultivation in the so-called

PURE CULTURE SOILS,

which consists in selecting the food best adapted for the rapid multiplication of microörganisms. The fact that bacteria remain sterile in certain soils and luxuriate in others, does not surprise us when we reflect upon the predilections of higher forms of vegetation.

While, then, many bacteria may be cultivated in almost any kind of culture soil, they differ in the degree of development according to the nature of the soil. Thus Wilkommen has observed that the germs which thrive upon the South American potato cannot be made to grow upon the European potato. The microörganisms which give the peculiar piquancy to Stilton and Roquefort cheese grow better in certain cellars than in others. The first experiments in cultivating bacteria were in fluids, solutions of meat, beef-tea, chicken soup, malt extracts, infusions of hay, etc., but fluids are open to the objection that they admit other germs, to coalesce with and render impure the special variety to be studied. Pure cultivation became possible only with the use of the pure culture soil first employed by Koch. Germs falling upon a solid surface remain fixed in the same place. The solid culture soil made practicable the absolute isolation of germs, without which accurate investigation is impossible. Koch made his first studies with the common potato. The potato was the key to the whole subject of solid cultures. We might say that what the apple was to Newton the potato was to Koch. Subsequently gelatine was employed, then aqueous humor, then gelatinized meat preparations, peptonized gelatine, etc., and as a climax for the epicures, gelatinized blood. Thus has been determined the peculiar soil in which the varieties of pathogenic bacteria thrive the best. Thus while the bacilli of both forms of cholera develop upon both animal and vegetable soils (both being really exanthropic germs), the bacilli of tuberculosis will not grow in a vegetable soil as upon the surface of a potato, but will thrive in infusions of meat and luxuriate in the serum of the blood. The micrococcus of chicken cholera grows to swarms in neutralized chicken soup, and the comma-bacillus, which is really not a bacillus, but a form of vibrio or spirillum, develops in such luxuriance in alkaline meat soups as to have enabled Schottelius to detect it in minimum amount. In such cases, where but very few or doubtful specimens were present in the intestinal contents, Schottelius added to the contents two and a half times as much slightly alkalized infusions of meat, or ten times as much gelatinized meat peptones. In this mixture, preserved uncovered in a warm place at a temperature not above 40° C., cholera germs developed in myriads within twelve hours. In this connection a remark may be made upon the

EFFECT OF BACTERIA UPON THE FOOD

selected, foreshadowing the local effects of microörganisms upon the tissues of the body in the so-called local

symptoms of disease. It is observed and distinctly tabulated if the gelatine or other food be liquefied, granulated, colored, decomposed, with or without the development of odors and gases, and the time required to induce these changes. Thus have mycologists made us familiar with characteristic features of the vibrios of both forms of cholera, which liquefy gelatine, while the micrococci of pneumonia have no such effect; have pointed out the nail cultures of pneumonia, the air vesicles of Asiatic cholera, the flat scales of tuberculosis, the fern leaves of the micrococcus of erysipelas, the acacia leaves of one form of the micrococci of pus. So also the effect of puncture or stick cultures show peculiarities different from plate cultures, and different effects are observed again with the same bacteria in different kinds of soil or food. Eisenberg has recently (Hamburg and Leipsic, 1886) published a Bacteriologische Diagnostik, which consists of a series of tables wherein are noted, in a form of inestimable value to the student of bacteriology, the pecularities of all known germs.

CONCERNING TEMPERATURE.

Three cardinal points are recognized of the temperature: the maximum, the minimum, and the optimum. The optimum is the temperature most conducive to fructification, to spore formation. Excesses in either direction arrest certain processes, extremes destroy life. As might have been premised, non-parasitic enjoy much wider latitude than parasitic germs. Thus, according to Cohn, the bacterium termo grows between 5° and 40° C., with its optimum at 30° to 35° C.; while the border temperatures of the bacillus tuberculosis, according to Koch, are 28° and 42°, with an optimum at 37°, the temperature of the human body. The conjoined influence of soil and temperature is shown in the conduct of certain bacilli (tyrothrix) found in cheese. The optimum temperature of this germ is 25° to 35° C. In a neutral fluid they are killed by a temperature of 90° to 95° C., while in a weak alkaline fluid they live at over 100° C. The mature spores of this species remain productive in a weak alkaline fluid after being boiled at a temperature of 115° C. Tyrothrix filiformis survives, in milk, a temperature of 100° C., a degree fatal in one minute in an acid fluid. The spores of this species survive in milk a temperature of 120° C., while in gelatine they are destroyed at 110° C. This knowledge of the range of temperature gives a differentation at once of parasitic from non-parasitic bacteria, as germs the range of which is limited to 28° to 42° C. may not constantly find anywhere upon earth, outside of animal bodies, the necessary means of existence.

Such differences prevail regarding the

NEED OF OXYGEN,

that Pasteur separated all microörganisms into two classes, aërobes and anaërobes. As, however, all known pathogenic microörganisms must have oxygen more or less, the division is of more value to the mycologist than to the clinician. One point in this connection regarding the ammoniacal degeneration of urine is of interest to the practitioner.

BACTERIA OF URINE.

This degeneration, as is well known, results from the conversion of urea by the absorption of water, into the carbonate of ammonia, during which process the originally clear fluid becomes cloudy and opaque. A drop of this urine under the microscope discloses myriads of germs of all descriptions. Cohn has shown that one of them, the micrococcus ureæ, is the prime cause of the ammoniacal change. Pasteur had already discovered that this micrococcus cultivated pure in a fluid containing urea induced in it the same change as in urine, and Musculus has since disclosed the fact that the change is induced by a chemical product, an enzyma separable by alcohol, excreted from this particular germ.

The presence of oxygen is a necessary condition of the life of the micrococcus ureæ, which cannot, therefore, be the cause of the ammoniacal degeneration that in bad cases of catarrhal inflammation takes place within the bladder, a sac shut in from the outside air. It was then assumed that this degeneration must be effected by other anaërobic bacteria, and, in fact, minute forms are found in freshly voided urine.

It is interesting to know that Miquel discovered in dust a very delicate bacterium which develops in the absence of oxygen. This bacillus he named the bacillus ureæ, because it has the power of converting urea into the carbonate of ammonia. Hence the force of Teuffel's warning, "Put no soiled catheter into the bladder."

THE FECUNDITY OF MICROÖRGANISMS

has been so often demonstrated in explanation of the suddenness of appearance of them in multitudes, and of the virulence of infectious disease, as to require mention here only for the purpose of checking the riots of the imagination. It is known that a particle from a milzbrand bacillus, so small as to be invisible under an ordinary lens, introduced beneath the skin of a guinea-pig, multiplies sufficiently to kill the animal in forty-eight hours, and a drop of the blood of the animal thus affected, properly inoculated, destroys the largest ox in a few days. It is useless to dwell upon this point of propagation. It was the recognition of it that compelled the return to the germ theory of infectious disease when it seemed to have been routed even with contumely. No purely chemical substance possesses this property. The power of reproduction or self-multiplication is limited to living things. Chemical substances admit of great subdivision, as best exemplified, perhaps, in the dissemination of odors, but such subdivision is attended always with gradual loss of substance.

Reproduction takes place in bacteria, whether by fission or spore formation, with a rapidity bordering on the marvellous. Cohn indulged himself in the pursuit of a calculation of this kind, reaching the conclusion that the progeny of a single bacterium, unchecked in growth, would in the course of three days reach the appalling weight of fifteen million pounds Troy, and in five days fill up a space of 928,000,000 cubic miles, the estimated capacity of the entire ocean. But while some such calculations may be justifiable to convey some adequate idea of the degree to which the earth and the air may be filled in a few days during the prevalence of an epidemic, it must be remembered that it was flights of fancy like these that first brought the germ theory into discredit and derision. Check is put upon the development and reproduction of all bacteria by the lack of nutrition which sooner or later must ensue,

as well as by the inimical action of different varieties upon each other. Thus the bacteria of decomposition cease to multiply, and perish in myriads so soon as the material of their food is converted into inorganic matter; the bacteria of fermentation are destroyed, or their reproduction checked by the alcohol which they form; the bacteria of cholera with desiccation, etc. The bacteria of most diseases perish with the death of their host, as well as from various other causes in life, as by the fever they evoke, or are themselves destroyed by the bacteria of putrefaction.

Thus it has been proposed to cure trachoma with the gonococci of gonorrhœa, lupus and epithelioma with the micrococci of erysipelas, and tuberculosis by the inhalation of the bacteria of putrefaction.

SPORE FORMATION.

The conditions affecting the process of fructification are of extreme importance to the proper understanding of the cause and prevention of acute infectious disease. A single bacterium is made up of several cells or parts, of which each cell forms one spore. Pasteur first recognized these "brilliant corpuscles," but it remained for Koch to determine their significance, and for Prazmowski and Hueppe to establish their supreme value from the point of view of differential diagnosis. The difference in the method of spore formation is also a chapter of itself which could find no discussion in the limits of this report. It is enough to say here that characteristics of specific bacteria are as definitely determined in the observation of these phenomena as in the effects of inoculation.

ENDOSPORES AND ARTHROSPORES.

There is now quite a general acceptance of de Bary's division of all bacteria into classes, one multiplying by endospores and one by arthrospores. Endospores are spores evolved from protoplasm in the body of bacteria in such a way that the spore forms its own membrane, while an arthrospore is a transformation of an entire part or cell of a bacterium, the membrane of the bacterium forming the membrane of the spore. True bacteria develop by endospores. Such are the pathogenic bacteria, whether in the form of micrococci, as of erysipelas, pneumonia, gonorrhœa, suppuration; bacilli, as of tuberculosis, syphilis, leprosy, diphtheria, milzbrand, glanders, and typhoid fever.

SPORES

are distinguished from micrococci by their bluish, opalescent cast, their high refractive power, and their obstinacy to color, because of the impermeability of their membranes. Strong acids and extreme heat, which kill the protoplasm of the bacteria, so injure the vitality of the spore membrane, as to make it permeable and admit color. Under such conditions spores may be colored intensely while the body of the bacterium is only feebly or not at all affected by color. Spores of all kinds are characterized by extreme tenacity of life. Most endogenous spores remain productive after exposure to 100° C., many even to 130° C. Anthrax spores survive a dry heat of 123° C. Endospores survive desiccation on an average about one year; those of the bacillus subtilis, according to Brefeld, three years. Pasteur claimed to have kept spores in hermetically sealed tubes, capable of reproduction after twenty-two years. Such long sustentation of life is capable, of course, only under favoring conditions. Botanists generally admit persistence of vitality in seeds from ten to twelve years. Statements of persistence for centuries, as from mummies' tombs, are considered mythical. As a rule, as stated, spores perish in a few years, so that limit is to be put upon the assertion of an enthusiast in antisepsis that "time does not destroy septic dirt."

BACTERIA OF THE ALIMENTARY CANAL.

The surface of the earth may be regarded as the bottom of an ocean of air which teems with microorganisms of every description. The origin, character, and distribution of these germs is a subject of itself. Myriads of them, among others pathogenic germs, are ingested and inhaled every day. The alimentary canal throughout its length is described as a rich garden of vegetating bacteria. Most mature forms are destroyed in the stomach under the action of the gastric juice, but many spores, and some mature forms—sarcinæ, for instance—escape to reach the intestine with all the favoring conditions of a hot-house. Mycologists speak of the flora of the feces; in fact, masses of feces are almost wholly masses of bacteria.

Bienstock, who has made a special study of these bacteria, succeeded in isolating one bacillus endowed with the specific property of decomposing albumen and fibrin. Cultivated to obtain sufficient quantity, it separates albumen and fibrin through all the successive stages of decomposition with its gases down to its final products, carbonic acid gas, water, and ammonia. No other bacteria have this property. Artificial albumen is not attacked, and casein is not touched by it. Hence it is that the stools of sucklings emit no fecal odor.

These bacteria of the intestinal canal belong to the class of

SAPROPHYTES.

They have to do with the resolution of organic into inorganic matter, and they are, therefore, the greatest friends of man. They have no power of penetration to the blood. It is now almost universally conceded that no germs exist in the physiological interior of the healthy body. No germs exist in healthy blood. An apparent exception proves the rule. In a number of observations with negative results, Klebs once found bacteria in the blood of an apparently healthy dog. It was subsequently learned that bacteria of decomposition had been previously introduced into this dog in an experiment on wound sepsis. The animal had long since perfectly recovered. The germs found by Klebs had still survived, and were remaining at the time of the observation quiescent. It was an observation useful also in illustration of the latent stage of disease. But even useful saprophytic germs become dangerous when they do enter the blood through breaks, sloughs, or ulcers formed by pathogenic germs. Such secondary saprophytic immigration occurs in diphtheria, typhoid fever, and smallpox as to have until recently occasioned much confusion in the recognition of the true pathogenic germs. Invasions of this kind, independently of these diseases, are probably responsible for many non-infectious septicæmias of surgery and obstetrics, as well as for many vague "rheumatisms," "malarias," "colds," "teethings," and "gastric fevers" of internal medicine.

Pathogenic microorganisms enter the blood through

solutions of continuity in the surface of the skin and mucous membrane, including the lungs. The germs of tuberculosis, pneumonia, and all the acute exanthemata probably enter the blood by way of the lungs which permit the passage of larger and grosser matters in the dust of coal, iron, etc. Each microörganism has its own history in its preference of site,

MODE OF INVASION, DISSEMINATION,

and effect upon the tissues of the body. One or two of the best studied forms will serve in illustration.

The micrococci of erysipelas are deposited upon the epidermis at some break of the surface, which break may have entirely healed by the time the disease is recognized, to distribute themselves chiefly in the lymph vessels of the skin and subcutaneous fat. Hence the superficial character of the disease. They multiply, according to Fehleisen, in a direction opposite to that of the lymph currents. They are never found in the blood or in distant organs.

The bacteria of decomposition take quite a different course. One set, the staphylococci, multiply in the connective tissue without entering the lymph vessels; another set, the streptococci, enter the lymph vessels and follow their course to constitute the lymph-angiectatic processes. Suppurative phlegmonous tracts indicate their presence.

The micrococci of gonorrhœa are endowed with the property, according to Bumm, of penetrating to and multiplying in the protoplasm of the urethral cells to effect their dissolution. Hence they are distributed by the lymph vessels or are carried directly, to be found in the bladder, kidneys, Bartholini's glands, periurethral abscesses, rectum, neck and body of the uterus, sacs of the conjunctivæ, and joints of the knee.

The bacillus tuberculosis, which is at the present time perhaps the most universally distributed of all pathogenic germs, finds less ready victims than that of cholera and milzbrand, because of its immobility, its slower growth, and less poisonous products. On account of these factors, the extension of the disease in the body remains, as a rule, circumscribed. Wandering cells sometimes carry it, but its transfer to distant organs, bones, joints, testes, meninges of the brain, etc., is chiefly effected by a quite accidental irruption into blood and lymph vessels. Thus, Weigert has demonstrated at local depots the erosion of and penetration into the walls of veins, Koch a direct irruption into small arteries, and Ponfick the perforation of the thoracic duct with the sudden inundation of the whole body to constitute the clinical picture of miliary tuberculosis. Thus, also, is easily explained the sudden aggravation of tuberculosis in latent, quiescent, and convalescent cases of the disease.

Eberth and Gaffky likewise describe the penetration by typhoid bacilli of the intestinal mucous membrane with subsequent infiltration of the submucous tissue, muscular coat, mesenteric glands, and escape thence into the blood to accumulate in the spleen. Hein claims to have discovered them in the spleen during life, but Fränkel and Simmonds (*Die aetiologische Bedeutung des Typhus Bacillus*, Hamburg and Leipsic, 1866), with good reason, discredit this claim, though they were able to make pure flat cultures from the spleen post-mortem in twenty-five of twenty-nine cases. The bacilli of typhoid fever increase in the spleen so rapidly, soon after death, as to render their detection easy.

THE EFFECT UPON THE TISSUES

of the body presents the same differences as the effect upon culture soils outside of the body, and here again each microörganism shows its own peculiarities. The superficial catarrhal and diphtheritic processes, parenchymatous infiltrations, coagulation necroses, neoplasms, etc., coarsely correspond to the alterations observed in the artificial culture soils.

Erysipelas, again, a surface disease, open to inspection, offers in the studies of Fehleisen perhaps the most accurately recorded observations in this regard. Fehleisen found that he could distinguish four layers or zones of inflammation. The first, the peripheric, extended about one centimetre beyond the reddened and elevated border wall. It showed no visible lesion, either in color or thickness, though its lymph vessels were stuffed with micrococci. The wall mentioned is itself the second zone, the zone of inflammatory reaction. It consists of the rapidly multiplying micrococci, with wandering cells which have partly taken up or ingested the bacteria, finally to displace and substitute them altogether. A small-celled infiltration with a total absence of bacteria marks the third zone, while the fourth shows only pallor or anæmia of the skin in process of restitution *ad integrum*. The accompanying fever and gastric catarrh—out of all proportion at times to the extent of the disease—are the results of chemical changes induced by the micrococci.

The fact that the same local phenomena are present in erysipelas migrans without constitutional signs would indicate that this disease is due to a different, though allied germ. Rosenbach found this disease often in individuals whose avocation deals with animal matter. Slight wounds of the hands in butchers, tanners, cooks, are frequently points of origin for a brownish-red infiltration which takes the precise course of erysipelas. From this infiltration he was able to cultivate a special micrococcus inoculable by puncture, and capable of producing the same condition.

True erysipelas is entirely unattended with suppuration or other destructive change than fatty degeneration of the epithelial cells and restitution by new formation. Suppurative or phlegmonous processes indicate a mixed infection with the staphylococcus or streptococcus which produces this condition. The supervention of a still graver complication—gangrenous emphysema—is due to another microörganism, this time a bacillus, of entirely different nature, the effect of which is to produce hemorrhagic infiltration of the deeper muscular structure with the development of the gases of decomposition.

A good illustration of the

ACTION OF MICROORGANISMS ON AN INTERNAL SURFACE

soil is offered by Löffler in the growth of the dumb-bell bacillus of diphtheria, which produces deep and extensive layers of false membrane in the fauces, pharynx, and trachea. The glutinous and pultaceous mass thus formed in a quicksand to catch and entangle the myriads of microörganisms ingested and inhaled, in such inextricable confusion as to have made it for a long time impossible to pick out the specific cause of the disease. Beneath this superficial layer Klebs and Löffler

at last succeeded in finding a special layer containing numerous cells among which, aggregated in small colonies, were special bacilli which admitted intense coloration with methyline blue. The layer beneath this again, directly superimposed upon the dilated vessels, is a fibrinous mass composing the bulk of the false membrane. It contains but few cells and no bacteria, and represents the product of reaction of the mucous membrane to the virus of the bacteria. This deepest layer is produced by the coagulation of a fibrogenous exudation which escapes from the bloodvessels and opposes a barrier to the further advance of the bacilli. Breaks in this barrier permit the absorption of the virus emanating from the bacteria or their products, to produce the constitutional symptoms of the disease.

The bacilli of tubercle, leprosy, syphilis, and glanders affect the soil of their selection in the body quite differently, in that they produce granulation tumors, or

NEOPLASMS

characterized by a tendency to rapid dissolution by fatty or calcareous degeneration. The cellular element of these tumors resembles that of the lymph glands. Taking tubercle as a sample, they are round cells of various size, the medium size resembling a white blood-corpuscle, with small, round, shining nuclei, provided with nucleoli. The large cells contain two, even up to twelve nuclei. Accumulation of these cells constitutes the nodule which the old anatomists named tubercles.

A tuberculous mass, on schematic section, shows an outside ring of round cells provided with a single nucleus about a narrow ring of epithelioid cells, which finally enclose one or more giant cells. The bacilli of tuberculosis are found in all parts of the tuberculous mass, free—that is, between the cells—as well as in the interior of the cells.

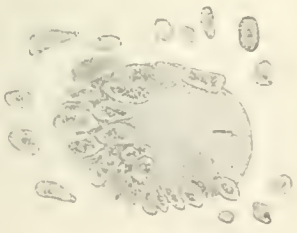
But the most characteristic as well as curious phenomenon is presented in the behavior of the

BACILLUS IN GIANT CELLS,

a question which brings the subject to its most intimate ultimate relations.

The giant cell, as is well known, is distinguished by the number of its nuclei, as well as by its size. When but a single bacillus penetrates to the interior of a giant cell, the nuclei of which are disposed about the circumference of the cell, it is commonly found in the free

FIG. 1.

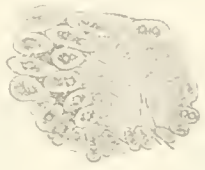


The bacillus in the giant cell.

space at or near the middle of the cell. But it is more common to find all the nuclei grouped together at one end, with the bacillus at the opposite, often at the extreme opposite, end of the cell. The poles of the cell are thus occupied, one by the nuclei, the other by the bacillus. Thus they stand facing each other like foes, and it is impossible to resist the conclusion that there exists between them an antagonism which keeps them as far as possible apart.

When two bacilli are present, it is not unusual to find one at each end or pole of the cell, while the nuclei are all grouped about the centre or equator, or, the relations being changed, the bacilli are disposed at the equator while the nuclei are grouped at the poles. It looks, Mittenzweig says, as if each group of nuclei was holding a bacillus in check. When the number of bacilli is greater, they do not long remain in this passive state.

FIG. 2.



For they are soon to be seen at different places in the cell, close to and between the nuclei, with their long axes perpendicular to the surface of the cell. The wall of the nucleus is thus broken down and the giant cell succumbs. Groups of bacilli are thus found arranged in a stellate form, but no longer surrounded with nuclei.

Koch concludes, hence, that the penetration of an epithelioid cell by one or more bacilli is the first step or stage in the origin of a tubercle. The virus or poison emanating from the bacillus irritates the cell to such a degree as to lead to increase in its size and multiplication of its nuclei—in other words, directly to produce the giant cell. The irritation extends to neighboring cells, to induce hyperplasia, and to vessels, to lead to emigration of the white blood-corpuscles. Meantime, the struggle continues in the giant cell, to end occasionally in the destruction of the bacillus, but far more frequently in the triumph of the germ. They then break through the circle of nuclei, escape from the wall of the cell to attack new cells, with similar fate. The ruptured cell suffers necrosis, the plasma current ceases, plasma and nuclei coagulate, nuclei are broken up into débris, and the whole cell is converted into a homogeneous, inert, dead mass. The condition may be arrested at this stage, as in the spleen, or may, as is usual elsewhere, suffer a later conversion into caseous matter. Bacilli which have not escaped to other cells perish with the death of the cells, their hosts. Syphilitic neoplasms show the same phenomena, except that they are more prone to undergo fatty degeneration, resorption, and cicatrization (Mittenzweig). The conduct of

BACTERIA IN THE BLOOD

current itself, or their effect or action upon the elements of the blood, is but little known. In most cases the stay is too short for any permanent effect. But one curious observation has been made by Metschnikoff concerning the bacilli of milzbrand and the white blood-corpuscles, which throws light upon the question of susceptibility and immunity of disease. With suspicion based upon the familiar fact of the absorption of food and foreign bodies into the interior of amœboid bodies, by protoplasmic protrusions and inclusions, and more especially upon the observation of a disease in small crustacea caused by the entrance of a peculiar fungus into the colorless

blood-corpuscles of the animal, Metschnikoff concluded to study the relations of the milzbrand bacillus to the white blood-corpuscles of vertebrate animals. He soon discovered that the blood-corpuscles of susceptible animals (rodents) only exceptionally incorporated virulent bacilli, whereas the blood-corpuscles of insusceptible animals (frogs, lizards) took them up abundantly. Being thus ingested or included, they soon perish in the interior of the cell, and finally disappear entirely. The same fate awaits milzbrand bacilli in the bodies of susceptible animals, when their virulence has been attenuated or abstracted in any way, as by artificial heat.

Fig. 3. Fig. 4.

Leucocytes as phagocytes.

These observations, should they meet with wider confirmation, must throw light upon the obscure subject of

IMMUNITY

conferred by an attack of disease against its repetition as well as upon protective vaccination. For we lack as yet a sufficient or satisfactory explanation of the immunity thus conferred, though three plausible hypotheses have been proposed. The first is the theory of exhaustion, which assumes that the germs of the disease exhaust the elements in the blood necessary to their nutrition. Something analogous to this is seen in vegetation of higher structure, which cannot be made to grow indefinitely in the same soil. The second is the antidote theory, or the theory of antagonism, which supposes that certain products evolved from the soil in the multiplication or growth of germs react upon them fatally. The analogy here is found in the process of fermentation, whereby the torulæ cease to produce themselves, become quiescent and sink to the bottom of the vessel as soon as the proportion of alcohol reaches twenty per cent. There is reason to think that the fever evoked by microörganisms is in some cases fatal to their growth and life. The third is the theory of accommodation, which maintains that the tissues in their first struggle with the microörganisms acquire a higher degree of energy or vitality, whereby they are enabled to endure or resist future attacks. Perhaps a simile may be found for this hypothesis in the process known as acclimatization. The observations regarding the

INCORPORATION AND ABSORPTION

of non-virulent or less virulent germs tend to support the theory of accommodation. For it would follow from them that protective vaccination, or, more properly, inoculation of weak bacteria, must confer upon the blood corpuscles the power to incorporate and destroy virulent bacteria. When protection is not sufficiently secured at once by a certain grade of attenuation, it might be accomplished by successive attempts with gradually increasing potencies. Thus successive inoculations of gradually increasing virulence would finally permit the introduction into the body of the most intensely virulent bacteria with impunity. It is upon this theory that Pasteur bases his claim to secure prophylaxis in hydrophobia, a disease in which sufficient time elapses, as a rule, between the wound and the symptoms to make experiments even after the wound, in the hope of anticipating the attack of the disease.

The fact that virulent bacteria are not absorbed would indicate, in the absence of any morphological difference, the presence in these bacteria of some chemical substance which antagonizes the cell. Moreover, the character of the constitutional symptoms—sopor, stupor, coma, delirium—which supervene in cases of grave, acute infections speak in favor of this view, and against the belief that bacteria act mechanically or by the abstraction of oxygen. In fact, neither the local nor the general signs of infectious disease are ever produced or can be produced in this way. The question now arises,

HOW DO PATHOGENIC MICROÖRGANISMS PRODUCE THE PHENOMENA OF DISEASE?

From the rapidity of their multiplication, it might be inferred that the symptoms and lesions of the infectious maladies are caused by the mere presence of these organisms as foreign bodies. But it has been observed that the bacilli of milzbrand alone multiply in the body in such number as to produce extensive occlusions of vessels. Further, it has been shown that no mere mechanical presence, no mere foreign bodies, aniline particles, or granules of cinnabar, ever induce the signs of fever or toxicæmia. The microörganisms of disease live in the body, and must, therefore, be nourished at its expense, whereby they withdraw from the blood or tissues elements essential for their nutrition. Pathogenic microorganisms require oxygen. In processes of fermentation outside air is excluded, in order that the germs of fermentation may be compelled to withdraw oxygen from the culture soil. Pathogenic microörganisms, multiplying in great abundance, seize upon the oxygen of the blood with such avidity as to devolop, in fulminant forms, symptoms simulating those of prussic acid poisoning. But the other symptoms mentioned do not correspond either to deficient oxygenation or to carbonic acid poisoning.

These symptoms indicate toxicæmia, and since the injections of fluids from which bacteria have been separated by unglazed porcelain filters remain innocuous, it follows that the toxic agent inheres with the bacteria. Then, inasmuch as blood corpuscles show their reaction against bacteria on simple contact, it follows that the poison must lie upon or issue from their surface.

The only poisons, hitherto known, which may in such minute quantities induce such grave toxic signs are the poisons resulting from the action of the bacteria of decomposition upon organic matter. As these intensely virulent poisons were first observed only in dead organic matter, they were called

PTOMAINES

(from πτῶμα, the fallen, a corpse, hence more grammatically ptomatins). These matters, the ptomaines, though but recently discovered, have received so much attention in the past year as to form a subject in themselves. It may be said here that some cadavers develop

no ptomaines, that ptomaines are developed as putrefaction advances in the course of weeks; next, that they are also found sometimes in animal products, as in cheese, urine, feces, etc.; and lastly, that many ptomaines are perfectly innocent. Then, it might be added, that many phenomena attributed to their action have been found due to simpler causes. Thus the claims of Passet, that any one of the eight forms of bacteria which he cultivated from pus, would coagulate sterilized milk, were found to rest upon simple lactic acid fermentation.

Brieger, who has made the most exact observations, operated with the Koch-Eberth bacillus of typhoid fever, which he cultivated from the spleens of fatal cases, and found to be identical with the pure cultures in the laboratory of Koch. These bacilli thrive in solutions of sterilized grape sugar, to which have been added the proper nutritrive salts. This clear fluid, kept in sealed tubes at a temperature of 30° C., becomes opaque in twenty-four hours after introducing the bacilli, and emits on opening the tubes a distinct odor of ethyl-alcohol, which increases from day to day. Besides the ethyl-alcohol, there develop small quantities of volatile fatty acids, together with acetic acid in large quantity. The typhoid bacillus has also the property of inducing in solutions of grape sugar the lactic acid fermentation. Sterilized bouillon, or minced meat used as soils, soon becomes alkaline, but develops, even after the lapse of eight weeks, none of the products or gases of decomposition. From these, as from all albuminous cultures, Brieger was frequently, but not always, able to obtain a basic product, which gave the chemical and physiological reactions of a ptomaine. In guinea-pigs it produced a slight ptyalism and an increased rapidity of respiration, followed, later, by a loss of power in the muscles of the extremities and trunk, without a distinct paralysis. There is diarrhœa throughout, and death takes place in twenty-four or forty-eight hours.

The same observer is now experimenting with the septic diseases of which the abnormal temperature elevations, interruption of functions, benumbing of the intellect, perverse action of the digestive apparatus indicate abnormal chemical changes in high degree.

Nicati and Rietsch, Villiers, Pouchet, have all made similar investigations with the bacteria of cholera. According to Pouchet, chloroform extracts of cholera dejections furnish an easily oxidizable and intensely poisonous oily substance which is certainly a ptomaine. Mere traces of it introduced into the bodies of frogs induce retardation of the pulse, with speedy death, attended by muscular rigidity.

Villiers also succeeded by the method of Stas in isolating a ptomaine from the intestines, kidneys, liver, and blood, in two cases which had succumbed to cholera. It was abundant in the intestines, but very scant in the blood. It had a sharp taste and an odor like the flowers of the white thorn. It had no effect upon frogs, but caused in guinea-pigs retardation of the pulse, tremor, and death.

According to the same author, cultures of the cholera bacteria have a peculiar ethereal odor which is not unpleasant. Solutions of this culture not over eight days old in bouillon or gelatine filtered free of bacteria, injected into the blood of dogs, induce diarrhœa and great depression, with dyspnœa, disturbances of motion, and sometimes death.

These experiments are cited merely as samples to show the direction of research at the hands of the most advanced observers in the past year. They indicate the lines of study by means of which we shall be able to combat the cause of infectious disease in a direct way. They show us that the time is at hand when, as Brieger observes, we may, as practitioners of medicine, no longer be compelled to rely upon empiricism, when we may find a specific therapy, if not remedy for a specific cause, since we have already learned that the accumulation of certain products of bacteria kills them. They show us that inflammation is not the cause, but the effect of disease which is caused by infection. They show us the direct road to cure through comprehension of the nature of infection.

THE ADDRESS IN SURGERY.

THE PRESENT STATUS OF ABDOMINAL SURGERY.

Delivered May 5, 1886.

BY N. SENN, M.D.,
OF MILWAUKEE, WIS.

(Continued from page 511.)

RUPTURE OF DIAPHRAGM.

RUPTURE of the diaphragm with escape of abdominal organs into the cavity of the chest is a rare accident, but when it does occur it is so uniformly fatal when treated on the expectant plan, that, in these days of heroic surgery, it would appear only reasonable to make an effort to save life by abdominal section, or by an opening into the chest. Either procedure would enable the surgeon to replace the dislocated organs and to close the rupture by suturing. A number of traumatic ruptures of the diaphragm with protrusion of abdominal organs into the cavity of the chest have been reported, in which during life, at least, a probable diagnosis could be made. All of the cases reported by Butlin and Brinton occurred on the left side. The physical signs on which the diagnosis was based consisted of tympanitic resonance over the side of the chest which contained the prolapsed intestines, with diminution of vocal fremitus and respiratory sounds over an area corresponding to the displacement of the lung. In pneumothorax respiration is abdominal, traumatic diaphragmatic hernia the respiratory movements are costal, and the abdomen is flattened; conditions which are suggestive of the escape of gas-containing intestine into the cavity of the chest. Symptoms of intestinal obstruction indicate strangulation of the protruded bowel. Guttmann regards displacement of the heart, in the absence of other causes, the most reliable diagnostic symptom.

An interesting case of traumatic diaphragmatic hernia which came into Albert's clinic has been described by von Horoch. The patient received a stab wound immediately under the left scapula. He died two days later with symptoms of asphyxia. The post-mortem examination showed that the left lung and the diaphragm were punctured by the knife. Through the wound in the diaphragm a portion of the stomach which had also been opened, had escaped into the left pleural cavity. The reporter found three similar cases

in literature. He suggested that in a diaphragmatic hernia, recent or old, presenting symptoms of strangulation, the chest should be opened sufficiently by rib section to permit reduction, and to close the wound in the diaphragm in such a manner that the sutures should embrace the serous coat of the stomach.

That the recognition of a diaphragmatic hernia is not always an easy task even after opening the abdominal cavity is illustrated by Ferrari's case. This surgeon performed laparotomy on a young woman who had suffered from symptoms of intestinal obstruction for seven days. The small intestines having been turned out from the abdominal cavity, a careful examination of their whole length, and of the cæcum, sigmoid flexure, and rectum was made without the discovery of any cause for the obstruction. The wound was closed and the patient rallied well and showed signs of improvement until next morning when sudden collapse manifested itself with speedy death. Post-mortem examination showed the existence of a diaphragmatic hernia from laceration—almost the entire transverse colon had escaped into the left pleural cavity, the distended loop of the intestine displacing the heart and the left lung. In the space near the diaphragmatic ring it was noticed that the constriction of the bowel was such as hardly to admit the tip of the finger, Upon trying to reduce the hernia, the ascending gut slipped back into the abdominal cavity without offering any resistance.

The establishment of a route to the diaphragm through the chest is not practicable on account of the frequency with which pleuritic adhesions are found and the greater amount of additional traumatism as compared with abdominal section, hence the latter should be preferred for the relief of diaphragmatic hernia in all cases in which a probable diagnosis can be made and in which symptoms of strangulation dictate the propriety and justifiability of the operation. If the injury is produced by a penetrating wound of the chest, the method of operation suggested by von Horoch would be applicable and in case the symptoms pointed to visceral injury of the abdominal organs it should be combined with abdominal section.

THE TREATMENT OF PERITONITIS BY ABDOMINAL SECTION AND DRAINAGE.

The great fatality of acute diffuse peritonitis under the old or expectant method of treatment gives some support to the recently proposed treatment by incision and drainage. This now common and general surgical procedure has been already applied with great success for the relief of inflammatory lesions of all of the other serous cavities. The first record of an operation performed deliberately on account of acute peritonitis was proposed and executed by Dr. Wiltshire, in 1868. About thirteen years ago Mr. Lawson Tait followed Wiltshire's example. Since that time he affirms he has never allowed a patient to die of peritonitis without opening the abdomen, whenever he was permitted to perform the operation. He has performed abdominal section forty-four times on account of the presence of peritonitis, and the operation has been completely successful in forty-one cases.

As peritonitis is usually only a secondary manifestation of an antecedent primary cause, it appears plain that the treatment by surgical interference will be most successful in cases in which the disease has not become diffuse, and in which the original cause can be removed. Cases of this kind are represented by

1. *Perforative peritonitis.* In order to recognize this condition early when most amenable to surgical treatment, it is important to allude to some of the most prominent early symptoms. Observation of a number of cases of peritonitis following perforation has satisfied Ebstein that the abdominal walls usually remain tense and rigid without distention; the abdomen may be flat, and even depressed. The contracted condition of the abdominal muscles remains for a variable length of time, when it is followed by distention with or without rigidity. The contraction of the muscles diminishes as the paralytic symptoms increase. Ebstein asserts that the absence of the normal liver dulness cannot be depended upon as a pathognomonic symptom of perforative peritonitis. He alludes to a case of perforation of the stomach where no gas had escaped into the peritoneal cavity to produce displacement of the liver. The liver also remains in its normal position in cases in which fluid escapes into the peritoneal cavity, and in which the organ has formed adhesions by previous attacks of perihepatitis. The absence of vomiting in a case of peritonitis, or its sudden cessation in the beginning of an acute attack indicates, when the patient is conscious, that either perforation of the stomach has caused the peritonitis or that perforation of the stomach has followed peritonitis. Vomiting is not present when perforation has taken place into the peritoneal cavity, or the bursa omentalis. A case, reported by Ebstein, appears to prove that vomiting again may take place in cases of perforation of the stomach as soon as the opening in the stomach has become closed by adhesions to neighboring organs. Perforation of the appendix vermiformis, bursting of a pyosalpinx or pelvic abscess, furnish familiar illustrations of perforative peritonitis in which a timely laparotomy would hold out encouraging prospects for a favorable recovery.

Mr. Treves has also shown that nearly all abscesses about the cæcum are, in reality, intraperitoneal, so that in opening these abscesses the surgeon always has to deal with the peritoneal cavity. As these abscesses are generally circumscribed by adhesions, a failure to open them in time may result again in perforation and secondary diffuse peritonitis.

Mr. Howard Marsh relates a successful case of abdominal section for suppurative peritonitis produced by the bursting of an abscess in the mesentery around old tubercular glands into the peritoneal cavity. The patient was a young man, nineteen years of age, who had suffered some time with symptoms of diffuse peritonitis. The abdomen was found exceedingly tender and distended. The incision was made over the most prominent portion of the swelling on the outside of the linea semilunaris, and gave exit to two or three points of fetid pus. The distended coils of small intestine could be felt through the wound. The cavity was washed out with a weak solution of carbolic acid and drained. The patient made a slow but good recovery.

J. W. Taylor reports an interesting case of acute hydronephrosis, in which rupture of the cyst into the peritoneal cavity produced great collapse, and in which a timely laparotomy prevented a fatal peritonitis. The patient was a girl, fifteen years of age, who was attacked

suddenly with pain in the left lumbar region, and vomiting, followed by the appearance of a fluctuating tumor in the same side, which was at the time diagnosticated as acute hydrops of the left kidney. She suddenly became collapsed, which, with other grave symptoms, indicated rupture of the cyst and extravasation of its contents into the peritoneal cavity. The abdomen was opened at once through the median line. The abdominal cavity was thoroughly cleansed, and the remaining portions of the cyst contents were removed by puncturing with the trocar. The cyst wall was sewed to the abdominal wound, and against all expectations the patient rallied and improved. In a few days the cyst refilled, which necessitated a second incision and drainage by means of a glass drain. Urine was discharged through the wound, but the patient improved. As no calculus could be found by an exploration of the interior of the cyst, it was believed that the left ureter had become completely obliterated, which would necessitate a nephrectomy at some future time.

That even perforation of a large pelvic abscess into the peritoneal cavity may terminate in recovery by timely and well-applied surgical treatment is well illustrated by a case reported by Mr. Treves, in a paper read before the Royal Medico-Chirurgical Society, March 10, 1885. The patient was a female, twenty-one years of age, who had suffered for three months from chronic pelvic peritonitis following severe gonorrhœa. During this time a large purulent collection containing very offensive matter had formed near the pelvic brim. The acute symptoms were due to the bursting of the abscess and extravasation of its contents into the general peritoneal cavity. On the following day the abdomen was opened under antiseptic precautions, the patient at the time being in a very critical condition. The peritoneum and intestine showed signs of diffuse recent inflammation. The peritoneal cavity contained a quantity of semi-opaque fluid, mixed with flakes of lymph and pus. The whole peritoneal cavity was washed out with many quarts of water, and a drain introduced. The symptoms improved promptly, and the patient recovered.

These cases furnish abundant proof that in cases of perforative peritonitis, irrespective of the nature of the material which has been extravasated, our only resource which affords any encouragement whatever is abdominal section. In cases of this kind it is important to search for the cause of the peritonitis, and to treat the conditions, if necessary, by operative measures; the toilet of the peritoneal cavity can be most effectively accomplished by copiously flushing with warm, sterilized water rendered slightly alkaline by the addition of chloride of sodium. As in these cases we can never be certain that the peritoneal cavity has been rendered perfectly aseptic, it is advisable to resort to drainage. We have every reason to hope that in the future perforation of the stomach or intestines will be treated by abdominal section, as it holds out the only possibility of preventing death from the consecutive peritonitis, by removing the extravasation and preventing further escape by closing the rupture. In such instances it is essential to search for the perforation, which must be treated in the same manner as intestinal wounds, after which the peritoneal cavity is cleansed, drained, and the wound closed.

The successful local treatment of tuberculosis has recently been extended to:

2. *Tubercular peritonitis.* König has called attention to the difficulty met with in the diagnosis of circumscribed ascites following tuberculosis of the peritoneum, and other fluctuating tumors of the abdominal cavity. He refers particularly to the peculiar kind of fluctuation found in these cases as an almost pathognomonic evidence. The fluctuating waves are large and are conveyed from one wall to the other, and the undulations are imparted to the abdominal wall.

Von Holst reports a case of tuberculosis of the peritoneum which was remarkable from the fact that, on percussion and palpation over the abdomen, dulness and fluctuation were felt as distinctly as in ascites, which on post mortem was not found to exist. The deception was due to firm adhesions which had formed between the omentum and intestines.

Not infrequently one or more smaller swellings are felt in the vicinity of the large one. Clinically it has been shown that the swelling may decrease in size for a time, or that it may remain stationary for a considerable length of time. Tuberculosis of the peritoneum is most frequently found as a complication of tuberculosis of other organs, but sometimes it occurs as a primary lesion in persons without any hereditary taint. Bucquoy observed a case which had its origin in a cheesy tubercular degeneration of the ovaries. König reports four cases of abdominal section performed for tuberculosis of the peritoneum. The patients were all females. One of them remained well two years after the operation. The exudation was usually found immediately beneath the anterior abdominal wall, the intestines, uterus, and ovaries being pushed backward. The cyst was always found lined with a thick fibrinous wall which presented all the microscopical appearances characteristic of tuberculosis. After incision the fluid was evacuated, the sac washed out with carbolized water, and the inner surface of the cyst dusted with iodoform. In the case which remained well after two years the cavity was drained, and the patient left the hospital with the drainage tube. The fistulous opening healed subsequently. König is of the opinion that in some cases of primary tuberculosis of the peritoneum a radical cure can be effected by laparotomy and local treatment.

3. *Chronic peritonitis with effusion.* The most favorable pathological condition of the peritoneum for surgical treatment is chronic inflammation with serous effusion. Abdominal section with drainage relieves the pressure promptly and thus favors reabsorption and the restoration of the physiological balance between secretion and absorption. Savage reports that he has performed laparotomy in six cases of subacute peritonitis attended by more or less effusion, and all of his patients recovered.

4. *Ascites.* Dr. A. G. Caillé, of New York, has recently called the attention of the Academy of Medicine to the value of permanent drainage in ascites (THE MEDICAL NEWS, February 13, 1886). He related two cases of cirrhosis of the liver with marked ascites, in which he had inserted a drainage tube into the peritoneal cavity at the linea alba, with the result of affording great relief of all the distressing and dangerous symptoms, and probably prolonging life for a considerable period. In one case an autopsy could not be secured,

but in the other one was made, when it was found that there was not the slightest indication of peritonitis at the point where the fistula was made. If permanent drainage of the peritoneal cavity is possible without causing inflammation, it is obvious that the treatment of ascites by drastic cathartics, diuretics, and other debilitating measures should be abandoned.

GASTROSTOMY.

The indications for gastrostomy have multiplied with the advances of modern aggressive surgery. The following are conditions for which the operation has been performed: 1. Extraction of foreign bodies; 2. Malignant disease of œsophagus; 3. Non-malignant stricture of œsophagus; 4. Cicatricial stenosis of pylorus. Ashhurst has collected 107 cases in which the operation was done with a view to establish a permanent gastric fistula for the following conditions: carcinoma, 72; syphilitic stricture, 2; cicatricial stenosis, 16. Of this number 24 patients survived the operation for more than 30 days; of 22 cases proving fatal soon after the operation, 12 died of diffuse peritonitis, and 3 of phlegmonous inflammation of the abdominal walls.

1. *Gastric fistula.* When the operation has for its object the formation of a gastric fistula, it is of some importance to know at what point the stomach can be opened most advantageously by interfering least with its functional capacity. The majority of operators have had recourse to Fenger's incision about two inches below and parallel to the left costal arch. Sédillot recommends an incision which should correspond to a point over the middle of the anterior surface of the stomach, claiming that the subsequent traction upon the cicatricial band in this locality would be reduced to a minimum, at the same time there would be no risk of injury to any important bloodvessels. Larger argues in favor of making the fistula as near the cardiac end of the stomach as possible, and nearer the lesser than the greater curvature of the organ. Berger and Championnière assert that clinical experience and post-mortem examinations have shown that the opening is usually made near the pyloric orifice of the stomach, irrespective of the particular method of operation selected by the surgeon. They also believe that a fistula in this locality does not impair the functional result. When a gastric fistula is to be established, the operation should be done in two sittings. The preliminary operation consists in making abdominal section, stitching the parietal peritoneum to the skin, thus protecting the soft tissues against phlegmonous inflammation by contact with infectious substances, and fastening the anterior surface of the stomach with Lembert's sutures to the margin of the wound, so as to secure adhesions between the visceral and parietal peritoneum before the organ is opened. After two or three days firm adhesions have formed, when the operation is completed by making a small incision through the wall of the stomach. Experience has shown that when the incision is large, it is difficult to prevent the escape of the contents of the stomach through the fistula even by ingenious contrivances, while a small opening is readily kept closed by a well-fitting compress.

2. *Extraction of foreign bodies.* When a foreign body has become lodged in the stomach, and its presence can be ascertained by a well-defined complexus of symptoms or by physical examination, no time should be lost in removing it by gastrostomy, as the foreign body may produce death by interfering with gastric digestion or by producing perforation. Under these circumstances the operation is completed by suturing the wound in the stomach after extraction of the foreign body in the same manner as an intestinal wound, using the precaution to apply a double row of sutures to secure more efficient and perfect coaptation of the margin of the wound and serous surfaces. Absolute and complete physiological rest of the organ is an essential condition for obtaining primary union in the shortest space of time. Gussenbauer removed by gastrostomy a sword blade 27 cm. in length and 2 cm. in breadth. The patient unfortunately died of septic peritonitis due to a perforation of the posterior wall of the œsophagus 14 cm. above the cardiac orifice of the stomach, and another perforation in the fundus of the stomach 1 cm. in width. Billroth removed successfully a set of false teeth in the same manner, and the patient recovered without any untoward symptoms.

That the stomach may become the receptacle of strange and most disgusting substances, is well illustrated by the cases recently reported by Schoenborn and Thornton, where gastrostomy was successfully performed for the removal of large masses of hair. Both patients were hysterical females. In Schoenborn's case the mass of hair weighed 281 grammes. That these cases are not so exceedingly rare, is shown by Thornton, who has collected 8 recorded cases where post-mortem examination revealed that the presence of hair in the stomach produced death, without a correct diagnosis having been made or surgical relief attempted.

3. *Malignant disease of œsophagus.* The results obtained by gastrostomy for the purpose of prolonging life in cases of carcinomatous stenosis of the œsophagus are not such as to entitle the operation to the dignity of a justifiable procedure, and yet it must be a source of comfort to the surgeons who continue to perform it to know that the mortality which attends it has greatly decreased since the antiseptic treatment of wounds has been introduced. Zesas, for instance, has collected all cases of gastrostomy before and since the antiseptic treatment of wounds was practised. During the pre-antiseptic period 31 operations were performed, with the result that only in one case was life prolonged by the operation (Jones). Of 131 cases operated upon under antiseptic precautions, 28 terminated favorably so far as the operation was concerned. In 104 cases carcinoma of the œsophagus furnished the indication for the operation, of which only 17 recovered from the immediate effects of the operation. With such mortality it becomes a serious question whether the operation is ever justified under the circumstances. Zesas, as the result of his investigations, advises that the operation should be performed early, before the patient has been prostrated from the effects of the disease. It behooves the conscientious surgeon to ask himself the question: Am I justified in submitting a patient suffering from an incurable affection to an operation of such gravity, which at best can prolong life only for a short time? Science, statistics, and humanity answer with a most positive and unqualified No!

4. *Non-malignant strictures of œsophagus.* In non-malignant strictures of the œsophagus not amenable to

more conservative treatment, gastrostomy should be performed with a view of securing a new inlet for food into the stomach, and for the purpose of affording a more direct route for treating the stricture. So far, the operation has been performed by Caponotto, Schede, Cérenville, McNamara, Davies-Colley, and Bryant. Fagan's two cases died. In Schede's and Cérenville's cases the principal and direct object of the operation—dilatation of the stricture—was not realized. The same applies to McNamara's case. Davies-Colley's and Bryant's cases were successful in every respect, as the dilatation of the stricture was accomplished and the permeability of the œsophagus was restored, so as to warrant the closure of the fistula.

Caponotto's case deserves special mention, as it illustrates in an admirable manner the indications for the operation, the method of performing it, and its results. The operation was performed at Turin, September 19, 1884. The patient was a boy five years of age, who had swallowed by mistake sulphuric acid five months before the operation. Soon after the accident symptoms of stricture appeared. He ate and drank with a good appetite, but vomited everything a few minutes after, and in consequence had become greatly emaciated. The finest olive-pointed bougie could not be passed through the stricture. The abdomen was opened at the usual place for a gastrostomy and the parietal peritoneum was united with the skin, and a continued catgut suture, that caught only the serous and muscular coats of the stomach, was made to fix the stomach to the wound. An antiseptic dressing was applied. On the fifth day the stomach was opened and food introduced directly into the stomach. The patient improved rapidly. The next step was to dilate the stricture, which was done by combined dilatation by means of sounds introduced both through the stomach and œsophagus. After one month's treatment the œsophagus was permeable to food, and the opening in the stomach was closed by a second operation. Four months subsequently the boy died of tubercular meningitis. The autopsy showed that the stomach was slightly adherent to the abdominal wall at the site of operation. The stricture had its location about two cm. above the cardiac orifice, as was shown by a white, circular cicatrix.

Loreta's method of digital dilatation in non-malignant pyloric strictures is deserving of confidence, and the results so far obtained merit imitation of the procedure.

5. *Cicatricial stenosis of the pylorus.* In the operative treatment of cicatricial stenosis of the pylorus, the surgeon can resort to gastrostomy with subsequent gradual or forcible dilatation of the stricture, pylorectomy, or gastroenterostomy. According to Zesas, gastrostomy for pyloric stenosis has been performed 27 times with 11 recoveries. In these cases the object of the operation is limited to the direct treatment of the stricture through the gastric wound, or fistula. If after opening the stomach the stricture can be efficiently overcome by rapid digital dilatation, the visceral and abdominal wounds can be closed. If, however, the object is not attained, a permanent gastric fistula must be established for subsequent gradual dilatation until the permeability of the organ has been restored, when the fistula is closed by another operation. It is only proper to remark that the operative treatment of cicatricial pyloric stenosis should be limited to extreme cases of narrow strictures with great dilatation of the stomach, in which simpler measures have proved ineffective in affording relief and maintaining nutrition.

(*To be continued.*)

MEDICAL PROGRESS.

Professor Gautier on New Leucomaines.—The interesting researches carried out during some years by the distinguished chemist of the Collége de France resulted in the discovery of a group of bodies resembling vegetable alkaloids, or rather the alkaloids which had been found by himself and others, to which the term ptomaines, or cadaveric alkaloids, is now applied. But the importance of his discovery lies in the fact that these bodies, to which he gave the name leucomaines, are found in healthy living matter, and there is every reason to believe were produced by the chemical changes of assimilation and disassimilation. Whether this is the exact truth, can only be proved by the results of future observers; but the physiologist is often rather shy of accepting the results of the chemist, armed as the latter is with powerful agents of chemical destruction, and it is often urged that he has himself produced the bodies he has found. Putting this question on one side, the importance of the new views to the subject of medicine can easily be seen. The living being is constantly manufacturing in his own tissues agents which can produce disease or death. We have not the same necessity to search for the ever-present etiological factors of cold and damp, or too hastily summon the microbes to explain our diseases. This discovery was, as might be expected, seized with delight by the antimicrobists; they had scientific evidence on which to found their opinions, and it must be said that they have in no way neglected to push the theory to its logical consequences. Ever since Professor Gautier's first paper at the Academy of Medicine, about two months ago, the subject for discussion has been the same—the leucomaines *vs.* the microbes; and lately a fresh support has been given to the antimicrobists by the announcement from the Professor of two new leucomaines, the poisonous properties of which are undoubted. The first body is called "adenine." It was discovered by M. Kossel, of Berlin, in the pancreas and spleen, and was described in Hoppe-Seyler's *Zeitschrift* of March 11. It appears to exist in all animal and vegetable cells, and can be extracted from them by neutral reagents; and, further, it appears that it is derived in the cell from the nuclein—a body already known—since under the influence of water and heat the nuclein produces adenine, phosphoric acid, and albumen. Adenine itself can be wholly transformed into hypoxanthine or sarcine—thus showing its near relation to the bodies we vaguely call nitrogenous metabolites; but a more interesting relation is hydrocyanic acid. The formula of prussic acid is HCN; the formula of adenine is $H_5C_5N_5$, and cyanide of potassium can be produced from it. The second body was isolated by M. Morelle from the spleen. This organ was chosen by the advice of Prof. Gautier because of its undoubted purifying action on the blood, being the place where alkaloidal and similar noxious products of metabolism are retained. The physiological properties of this leucomaine were tested,

and it was found to be a paralyso-motor, with a powerful action on the medulla oblongata. A small quantity injected under the skin of a guinea-pig appeared at first to produce nothing abnormal, with the exception of immobility, a refusal of food, and some swelling near the point of injection for the first forty hours, but by degrees the depression and suffocation increased, and the animal died asphyxiated. At the necropsy were found congestion of the lungs with subpleural ecchymoses, general œdematous infiltration of the liver, spleen, and kidneys, and a certain hardness of the ventricles, appearing to indicate the arrest of the heart in systole.—*The Lancet*, April 24, 1886.

OLEOMARGARINE.—The following statements are taken from the Supplement to the Fourth Annual Report of the State Board of Health of Massachusetts:

The use of substitutes for butter seems to be steadily on the increase in this country. When good butter is at from forty to fifty cents per pound, it has passed beyond the means of persons in moderate circumstances, and they have the choice of three things: to do without, to use poor butter, or to use some substitute.

It was, according to Mégé-Mouriez, a demand such as this which led him to investigate the manufacture of a palatable substitute for butter from the fat of animals slaughtered for food. By his investigations he was led to believe that the only difference between butter and beef-fat was that the latter contained an excess of stearine. He also came to the conclusion that the taste and smell of ordinary tallow are largely due to the want of care in its manipulation. He therefore prescribed the following method of procedure:

The caul fat was to be taken as fresh as possible, and to be thoroughly washed, then chopped fine and rendered with a dilute solution of acid phosphate of lime and the stomach of a pig or sheep at a temperature not exceeding animal heat. (This heat has been gradually raised in reissues of his patent until, at the present time, it reads, "at a heat not exceeding 125° F." It is not possible to do good work at a temperature below 116° F.) After the fat is completely liberated by this process, it is allowed to stand until the membrane settles; it is then drawn off into coolers, and allowed to granulate and to cool to a temperature of about 80° F. The fat is then placed in cotton-cloth press-bags, and submitted to a powerful press, the press-room being maintained at an even temperature of 80° F. The oleomargarine thus produced is free from any disagreeable taste or odor. It is in fact a pure tallow oil, suitable for use as an article of food; in this state it makes an excellent substitute for lard.

Such was the process as originally proposed by M. Mégé. The process as now followed is much more simple, and omits some of the objectionable features of the Mégé process.

In the first place, the fat, which is received warm from the slaughter-house, is sorted over, and all bloody pieces thrown out; it is then at once placed in cold fresh water, where it is thoroughly washed. From this water, which not only washes it but serves to cool it, it is at once taken to hashing-machines, similar to the ordinary sausage-cutters, where it is cut into fine pieces. From these machines it falls at once into the rendering tanks, where it is rendered at a heat varying from 160° to 200° F.; the object being to separate, as quickly as possible, the fat from the membrane. No "gastric juice" or phosphate of lime is used. After the fat is well cooked a quantity of salt is added; this serves to separate the membrane more completely. After standing a few minutes the fat is then run off into barrels or other vessels, where it is allowed to settle, and is crystallized. When it has cooled to about 95° to 100° F., it is pressed in the usual manner.

After pressing, the oil is churned with milk or buttermilk, some genuine butter being frequently added; it is colored properly, and then run into ice-water or pounded ice, so as to prevent its crystallization; after this operation it is worked as ordinary butter.

When well made it is a very fair imitation of genuine butter, being inferior to the best butter, but much superior to the low grades of butter too commonly found in the market.

So far as its influence on health is concerned, we can see no objection to its use.

Its sale as genuine butter is a commercial fraud, and as such very properly condemned by the law.

As to its prohibition by law, the same law which prohibited it should also prohibit the sale of lard and tallow, and, more especially, all low-grade butters, which are far more injurious to health than a good, sweet article of oleomargarine.

A great deal has been said in regard to the poor grade of fats from which the oleomargarine is made. Any one making such assertions in regard to the fat is simply ignorant of the whole subject. When a fat has become in the least tainted, it can no longer be used for this purpose, as it is impossible to remove the odor from the fat after it has once acquired it.

EXCISION OF THE PYLORUS.—A case of resection of the pylorus, terminating fatally, is related by DR. VAN STERSON in the *Weekblad* of January 2d. He remarks that he has mentioned it intentionally, not to discourage or deter others from the operation; but from his own conviction that, when local and general circumstances are favorable, he believes the operation to be distinctly indicated. In the case mentioned, the patient died from want of strength to resist the shock of the operation, having previously suffered from vomiting and diarrhœa. The patient was a woman, aged fifty-one. When put under chloroform, the narcosis was calm and regular. A tumor was found in the pyloric region; there were no adhesions and no ulceration. The tumor affected the pylorus alone, and was very hard; on microscopic examination, it appeared to consist of a "tubular carcinoma," or "non-typical adenoma." After the tumor had been cut out, the stomach was found to be perfectly empty, a sponge, which had been introduced, returning quite clean. The mucous membrane of the stomach was not ulcerated. The cut ends of the duodenum and the stomach were carefully sutured together; a couple of camphorated ether injections were given to the patient, and she was laid in a warm bed. She roused sufficiently to be able to answer questions, and to state that she felt no pain, but her pulse was scarcely perceptible, Camphorated ether injections were continued every quarter of an hour, but in two hours and a half death occurred. There had been no particular difficulty in the operation, and no subsequent pain; but the patient had not sufficient vitality to survive the shock.—*The British Medical Journal*, April 24, 1886.

THE MEDICAL NEWS.

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SATURDAY, MAY 15, 1886.

THE NATURE OF INFECTIVE OSTEOMYELITIS.

THE nature of what is known as infective osteomyelitis is not as yet perfectly understood, although recent studies in the line of the germ theory of diseases have apparently done much to make it clearer than it once was. A microörganism was first observed in the pus of osteomyelitis in Germany, in 1874 and 1875, by Lücke, Klebs, and Eberth, and in France, in 1880, by Pasteur. After this a number of different observers endeavored to produce a similar disease, in otherwise healthy animals, by inoculation with what was believed to be the specific germ of infective osteomyelitis. These experiments have not yet proved conclusive, from the fact that it has heretofore seemed to be necessary to accompany the inoculation with some artificial injury of a bone or joint in order to bring about the condition which was looked for. Further, it has been claimed that this condition could be brought about with ordinary putrid materials, if their action was supplemented in a similar manner.

Last year a valuable contribution to this subject was made by DR. A. J. RODET, of Lyons (De la nature de l'ostéomyélite infectieuse, etc., *Revue de Chirurgie*, 1885), in which, after calling attention to the points already mentioned, he describes some experiments of his own. In these he made intravenous injections with the pus of osteomyelitis, or with a culture fluid, and in eight cases out of fourteen produced juxta-epiphyseal lesions of the bones having the characteristics of osteomyelitis. In one of his experiments, of which the details are given, he employed a culture of the thirteenth generation, and produced juxta-epiphyseal osteitis of both femora, of one tibia, and of one humerus. In studying these experiments, Dr. Rodet remarks that the principal seat of the lesions was the medulla of the juxta-epiphyseal region, which corresponds with the views of Ollier. The periosteum was not much involved, and there was no true subperiosteal abscess. There was sometimes a separation of the epiphysis, but this was at the expense of the diaphysis. In a few cases the epiphysis also was invaded. The most notable exception to this rule is found in the upper end of the femur, where the lesions are habitually situated in the upper part of the neck, which is separated from the diaphysis by a connecting cartilage.

The form of osteitis which Rodet observed was rarefying; in exceptional cases it was condensing. He believes that what he produced was the same disease as that known in human beings as infective osteomyelitis, and that he has been able to supply the missing link in the theory which makes this depend upon a specific germ.

We cannot go quite so far as this. The experiments are interesting and instructive, and they seem conclusive. But we must not forget that they follow the work of other careful experimenters who failed to secure any such result. KRAUSE, for example, who reported experiments in the *Fortschritte der Medecin*, for April, 1884, concluded that inoculation of lower animals with the micrococcus of infective osteomyelitis, while always producing a disorder characterized by the formation of pus in various tissues, and having a predilection for the parts of the locomotor apparatus, does not produce one which can properly be said to resemble closely infective osteomyelitis in human beings.

It must be borne in mind that Krause speaks from Germany, while Rodet speaks from France, and more than this, from Lyons and the circle which surrounds Ollier. It must also be noted that Rodet used liquid culture media, while recent German students have thought that perfect isolation of specific microörganisms can be secured only by culture upon solid media. Such a difference of opinion is very material, and there still may be some doubt that Rodet has succeeded in demonstrating that the effects of his inoculations were attributable to the micrococcus of osteomyelitis.

URETHAN.

THIS new hypnotic appears to have properties worthy of the attention of the profession. Chemically it is an ethylic ether of carbamic acid, and when pure consists of white rhomboidal crystals which are readily soluble in water. Schmiedeberg experimented with it upon animals, and von Jaksch, Jolly, and others have studied its action in man. In suitable doses it produces a deep, dreamless, natural sleep from which the individual awakens refreshed and without the unpleasant sensations which so often

accompany the use of a hypnotic. It does not appear to have any special action on the circulatory, respiratory, or excretory system. The effect of the drug seems to be exclusively upon the higher cerebral centres.

ELOY, in *L'Union Médicale*, Nos. 36 and 37, 1886, reviews its use in ninety cases which have been reported, including many of heart disease, phthisis, and neuralgia, in most of which it acted promptly and satisfactorily. In phthisis it seems also to allay the cough. Restlessness and insomnia, not pain, are the special indications for its administration. The dose as a sedative is from fifteen to thirty grains, and as a hypnotic thirty to sixty grains. It is not unpleasant to take, and is best given in a single dose.

If the statements regarding the action of urethan are borne out by subsequent experience, a very valuable agent has been added to the pharmacopœia —a powerful hypnotic acting on the higher cerebral centres, and without any of the unpleasant effects of morphia or chloral.

RECTAL EXPRESSION.

DOLÉRIS, in the number of the *Répertoire Universel d' Obstétrique et de Gynécologie* for March 10th, advises, as one of the means for preventing tears of the perineum, delivery of the head of the fœtus by rectal expression. He attributes the method to Olshausen and Ahlfeld, and describes it as consisting in the introduction of two fingers into the rectum of the parturient toward the end of the expulsive stage, carrying them as far as the mouth or under the chin of the child through the recto-vaginal wall. Then with these fingers drawn in front and above, and by suitably directed gentle pressure, the deflection of the head, which is gradually elevated to the pubic arch, is effected or completed. The free hand may be used to assist this deflection. Two points are urged by Doléris in rectal expression: First, let it be done in the interval of contractions; second, let it not be begun until the posterior angle of the anterior fontanelle is fully in the commissure.

Of course, the use of the fingers in the rectum for the delivery of the head is much older than the practice of Olshausen and Ahlfeld, but we have never been able to see how this method in itself furnished any greater security for the safety of the perineum than spontaneous delivery does. It can by no means increase the circumference of the vulvo-vaginal ring, and when that circumference is equal to the circumference of the fœtal head, the latter passes through without doing injury to the former. External means are quite as efficient in retarding the exit of the head until the orifice, through which it is to pass, is sufficiently dilated, and in guiding the head in the axis of the finual portion of the birth canal, while they are much less repulsive; art should be an imitation of nature, and nature gives no hint for the performance of rectal expression.

SOCIETY PROCEEDINGS.

THE AMERICAN MEDICAL ASSOCIATION.

Thirty-seventh Annual Meeting, held at St. Louis, May 4, 5, 6, and 7, 1886.

(Specially reported for THE MEDICAL NEWS.)

MAY 7.—FOURTH DAY.

GENERAL SESSION.

THE final report of

THE COMMITTEE ON NOMINATIONS

was then announced. The only Section that had reported, in addition to those given on the day previous, was that on Medical Jurisprudence, whose officers-elect were:

President.—I. N. Quimby, M.D., of New Jersey.
Secretary.—H. H. Kimble, M.D., of Minnesota.

GENERAL SHERMAN

was then called to the platform, and spoke a few words of compliment and respect. He referred to his own observations of the labors of the surgeons in the late war, and closed by assuring the Association of its cordial welcome to the homes of St. Louis, and expressing approval of such general assemblages of scientific men, which can only result in profit to the public as well as to themselves.

DR. CHAS. K. MILLS, of Philadelphia, then moved that the order of business be suspended in order to receive

THE REPORT OF THE JUDICIAL COUNCIL.

A motion to lay this motion on the table was then promptly made and carried.

THE REPORT OF THE COMMITTEE ON PUBLICATION

was then read by Dr. J. M. Toner. The report embraced the financial business of the publication of the *Journal of the American Medical Association* for the year ending March 31, 1886, being the last quarter of the second and first quarter of the third year of its publication. The journal, it stated, has been issued regularly, and without a single exception, either on or before the date of publication, has been mailed to the subscribers. At the last meeting of the trustees, the editor was instructed to publish the journal in the future on account of the Association, and during the last nine months it has been published in that way, from the publishing office of the Association.

The report of the editor was then read. The following are the principal facts embodied in it:

To members of the Association	3050
To subscribers	850
To exchanges and editors	120
Total circulation at time of last report	4020
To members of the Association	3374
To subscribers	645
To exchanges and advertisers	252
Total circulation at present time	4271

The above indicates—

Net increase in membership during the year	324
Net decrease in subscribers " "	205
Net increase in exchanges and advertisers	132
Total number of journals printed weekly at present time	4500
Total number of journals printed weekly last year	4200
Net increase	300
Excess over mailing list	229

A considerable part of these copies are required for sample copies, etc., so that a reserve of seventy-five copies is kept for the purpose of completing files. The decrease in the number of subscribers was occasioned almost entirely by deaths and changes from subscribers to membership.

Financial Report. The receipts given relate only to moneys received at the office of publication from subscription, advertising, etc., and not to receipts from members and delegates, which is embraced in the report of the Treasurer.

Received from subscribers	$2,738 29
Received from advertisers	2,165 07
Received from reprints and extra copies	427 10
Total receipts	$5,330 46
Unpaid subscriptions accumulated during the past three years	$5,435 00

One-half of this, it is reasonable to believe, will be paid during the present year.

The report stated further that at the expiration of the contract with the printer, in last June, the Editor had, in accordance with the decision of the Board of Trustees, purchased the necessary type and fixtures for the publication of the Journal, at a cost of $600, and that the saving in the expense of publication since work began in the new office, had amounted to more than the original cost of the outfit.

The report of the Trustees concluded by reviewing briefly the Editor's report, with the following summary:

Total receipts, as shown by the Treasurer's report	$18,067 39
Total expenditures for the Journal	14,098 67

DR. GARCELON reported that the Auditing Committee had examined the report and found it correct in every particular.

REPORT OF THE JUDICIAL COUNCIL.

DR. J. M. TONER, Chairman of the Judicial Council, made the following report: In the case of the protest against the admission of delegates from the *Tri-State Medical Society*, your Judicial Council would respectfully report that, as the Constitution of the Association recognizes delegates only from State societies and from such county and district societies as are in affiliation with their State societies, the Tri-State Medical Society not being in affiliation with such State society, its delegates are not admissible to seats in this Association.

In the case of the protest against admission of delegates from the *Davidson County Medical Society* of Tennessee, the Judicial Council reported that after careful examination of all printed, written, and oral discussion, they had decided that sufficient evidence had not been presented to warrant them in denying registration to such delegates, but that the Council desired to admonish the said Davidson County Medical Society that it should put itself as soon as practicable, in affiliation with the State Society.

In the case of the protest against the admission of the *Mississippi Valley Medical Society's* delegates, the Judicial Council reported that the protest had been accompanied by no charges, and therefore the Council could take no action.

In the case of the protest against the *Philadelphia County Medical Society*, which, upon petition, was reopened to admit of the hearing of new testimony, the Council decided, after long and careful reëxamination, including evidence not before presented, that notwithstanding the fact that the delegates from this Society hold documents usually held to entitle to membership, the methods employed for obtaining such papers were of such a character as to prohibit their being received. The Treasurer was further authorized to refund to delegates from this Society any money which he had received from them as dues. The delegates thus excluded were referred back to their County Society for final action.

DR. EDWARD JACKSON, of Philadelphia, announcing himself as a permanent member, as well as a delegate registered from the Philadelphia County Medical Society, requested information with regard to the present status of the delegates just excluded. Until the County Society shall have time for final action, are its delegates to be considered members of the Association or not?

No action was taken on the request.

DR. JOHN B. ROBERTS, of Philadelphia, then arose to offer a resolution, but was ruled out of order, and

THE ADDRESS ON OPHTHALMOLOGY

was delivered by Dr. Eugene Smith, of Michigan.

Reference was made to the recent discoveries in regard to the action of cocaine, particularly to the occasional toxic action it exerts, and he advised that in all cases it should be tried first in the strength of one per cent., until its action on the patient has been demonstrated, when the strength of the solution employed may be increased to three or four per cent.

He stated that recent experiments had placed the operation of transplanting the conjunctiva of the rabbit upon the human eye, among the recognized operations. Clinical experiences and careful study have demonstrated, that in sympathetic conjunctivitis the inflammation travels along the optic nerve to the unaffected eye. Referring to the use of antiseptics, he stated that they should always be combined with other means for the prevention of suppuration—above all, with careful observation of cleanliness.

Cocaine, he continued, has taken its place in the treatment of painful affections of the ear. A four per cent. solution is usually employed. Bad symptoms have followed its use in but a few cases. The dry treatment of otitis media suppurativa, although strongly advocated by some, has been decided as being applicable to but a certain class of cases, others improving more rapidly under other methods. The discovery of a causal relation of certain local pathological conditions of the nasal chambers to pulmonary diseases, has been an important advance.

The relation of the same diseases to asthma, chorea,

and epilepsy, has also been demonstrated by cure by appropriate treatment. Reference was made to the application of electricity to the removal of adventitious tissue from the nasal cavities.

During the year, the intubation of the larynx has been practised to an extent and with a result that are truly remarkable. It is an operation that bids fair to supplant tracheotomy for the relief of laryngeal affections. Its introduction is due to Dr. O'Dwyer, of New York. Great improvement has also been made in the process of photographing the laryngeal image.

THE REPORT OF THE SECTION ON STATE MEDICINE

stated that the officers nominated for the ensuing year were:

President.—G. H. Robé, M.D., of Baltimore, Md.

Secretary.—Walter W. Wyman, M.D., of the Marine-Hospital Service.

Regarding the petition presented by the National Women's Christian Temperance Union, the Section had

Resolved, That we reiterate the utterances of the American Medical Association in regard to the evils arising from the use of alcohol, and recommend that a committee be appointed to consider the matter of the memorial to Congress, and report at the next meeting.

In regard to the memorial on the subject of cremation, a committee was appointed to consider the matter, and report at the next annual meeting.

It was recommended that the Association appoint a committee of three to report at the next meeting a form of

LAW REGULATING THE PRELIMINARY EDUCATION

which shall be deemed necessary of candidates to study medicine, the course of study they shall pursue, and the manner in which they shall be licensed to practise, the enactment of which shall be recommended to the Legislatures of the different States.

The report was adopted.

MISCELLANEOUS BUSINESS.

Dr. John B. Roberts, of Philadelphia, offered the following resolutions regarding the

EXCLUSION OF THE DELEGATES OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

Resolved, That President Brodie be respectfully requested to inform the meeting, at this moment,

First. Whether the report of the Judicial Council in the matter of the Philadelphia County Medical Society was given to the Chair by a member of the Council (Dr. Marcy) on Wednesday, with the request that it be presented to the Association at the conclusion of Dr. Senn's Address.

Second. If so, did the President or Permanent Secretary make an effort to present it at that time?

Third. Did the President or Permanent Secretary know the contents of the report of the Judicial Council?

Fourth. Do the by-laws of the Association, on page 26, require the decisions of the Judicial Council to be reported to the Association at the earliest practicable moment, and are such decisions there declared to be final, and unchangeable by any action of the Association?

Fifth. Did the Permanent Secretary introduce any items of new or miscellaneous business between the report of the Rush Monument Committee and adjournment?

Sixth. Did he, at that time, make any effort, by public statement, to read the report of the Judicial Council?

Seventh. Has the Permanent Secretary, at previous meetings, ever requested that the motion to adjourn be postponed a single moment, until a matter of important business, requiring no action, be introduced?

Eighth. Did the Permanent Secretary, at this time, make any such request, and if not, was it not his duty to do so, under By-law II., page 26?

Resolved, That President Brodie be respectfully requested to inform the Association at this moment,

First. Whether the report made yesterday by Dr. Gihon, on the recommendations contained in the President's Address, was on the order of the day.

Second. Why Dr. Roberts's request that the Permanent Secretary state why the report of the Judicial Council was not read yesterday was not answered.

Third. Under what parliamentary law was the motion of Dr. Roberts, asking information as to why the Permanent Secretary had not read the report of the Judicial Council on the previous day, ruled out of order, because not a part of the order of the day, when immediately afterward Dr. Toner was allowed to introduce and obtain a motion relative to the Judicial Council, though this was not a part of the order of the day.

Fourth. Why Dr. Toner's motion asking that the Report of the Judicial Council be returned to the Judicial Council was necessary, when the Chair had stated in reply to Dr. Jackson that it could not be presented by the Permanent Secretary of the Association, because it was in the hands of the Judicial Council.

Fifth. What is the status of the delegates of the Philadelphia County Medical Society, at the present time, when, as is well known to the Association, their credential fees have been received by the Treasurer, and proper papers entitling them to seats in the Association have been duly issued to them.

Resolved, That the Judicial Council be requested to consider the propriety of changing the manner of taking evidence in cases of contestant delegations.

Dr. J. A. Octerlony, of Kentucky, moved that the resolutions just read be laid upon the table. Carried.

A motion to reconsider this motion was defeated.

The Chair then announced as the Committee to consider

THE ADVISABILITY OF MODIFYING THE ORGANIC LAWS

so as to organize branches, and to suggest means, if desirable, for the attainment of the same, as follows: The President, the President-elect, and the four Vice-Presidents, as required in the motion, Drs. N. S. Davis, of Chicago; A. L. Gihon, of the U. S. Navy; and J. M. Toner, of Washington, D. C.

The President announced the following appointments:

DELEGATES TO EUROPEAN SOCIETIES

N. S. Davis, M.D., of Chicago; W. T. Briggs, M.D., of Nashville; William H. Pancoast, M.D., of Philadelphia; S. C. Gordon, M.D., of Portland, Me.; J. V. Shoemaker, M.D., of Philadelphia; E. Cutter, M.D., of New York; E. Smith, M.D., of Detroit; W. W. Dawson, M.D., of Cincinnati; D. McLean, M.D., of Ann Arbor; B. A. Watson, M.D., of Jersey City, N. J.; William Brodie,

M. D., of Detroit; L. H. Montgomery, M. D., of Chicago.

To the Ontario Medical Society, H. O. Walker, M.D., of Detroit.

To the Canada Medical Society, William Brodie, M.D., of Detroit.

INOCULATION OF YELLOW FEVER.

DR. GASTON, of Atlanta, Georgia, presented a resolution, the purport of which was that, in view of the fact that well-authenticated reports have been received of the successful inoculation with attenuated virus of yellow fever poison, in proof of which Dr. Horace Allen, now present, testifies that he was inoculated and afterward passed through an epidemic of the disease at Rio Janeiro, without contracting the disease, while many others died of it; and in view of the fact that reports have been published which indicate the safety of the procedure, the Association, therefore, petition Congress to appoint a scientific commission and appropriate sufficient funds for an investigation of the method and its success. The resolution was adopted.

A RESIGNATION.

DR. JOHN B. ROBERTS, of Philadelphia, offered his resignation of the office of Secretary of the Section on Anatomy and Surgery, in view of the fact that the delegation of the Society of which he was a member had been excluded from the Association. On motion, the resignation was accepted.

EXPUNGED FROM THE MINUTES.

DR. A. E. BALDWIN, of Chicago, then moved that as certain resolutions offered by Dr. Roberts were of a character which cast a reflection on the conduct of our excellent President and Permanent Secretary, therefore, that all allusion to said resolutions be expunged from the minutes of the Association. Carried.

DR. JACKSON, of Philadelphia, then read

A PROTEST AGAINST THE ACTION OF THE JUDICIAL COUNCIL

by which the Philadelphia County Medical Society, one of the oldest, most respectable, and the largest of the medical societies in affiliation with this Association, has been excuded from recognition at this meeting. A motion to table the protest was promptly made and carried.

DR. N. S. DAVIS, of Chicago, moved

A VOTE OF THANKS

to the Committee of Arrangements, to all the local officers, and to the people of St Louis, from whom such cordial courtesies and such kindly treatment had been received. Adopted.

AMENDMENT TO THE BY-LAWS.

DR. KELLER, of Arkansas, offered an amendment repealing that adopted at the present meeting by which the Sections nominated their own officers.

Drs. Davis and Johnson were then appointed a committee to introduce

THE PRESIDENT-ELECT,

Dr. Gregory, of St. Louis.

DR. GREGORY accepted the office with a few appropriate remarks expressing his sincere gratitude for the honor conferred upon him.

DR. BRODIE, after a few words of thanks to the members of the Association for the manner in which they had supported and aided him in the discharge of his duties, and after congratulating them on the pleasant manner in which all matters on which there existed a difference of opinion had been adjusted, leaving no personal ill-will between any of the members, declared the Association adjourned.

AMERICAN SURGICAL ASSOCIATION.

Seventh Annual Session, held at Washington, D. C., April 28, 29, and 30, and May 1, 1886.

(Specially reported for THE MEDICAL NEWS.)

THIRD DAY, APRIL 30.—MORNING SESSION.

DR. T. F. PREWITT, of St. Louis, read a paper on

TRAUMATIC ANEURISM OF THE INTERNAL CAROTID ARTERY.

In referring to the rarity of aneurismal disease of this artery, he said: In 1842, Mr. Syme, speaking of spontaneous aneurisms, declared that "Aneurism of the internal carotid, external to the cranium, does not seem to have been ascertained or recorded." Some of our latest standard authorities—among them Holmes—ignore it entirely, in discussing the subject, while others speak of the possibility of its occurrence. Ashhurst alludes to it incidentally; Agnew states that the internal carotid may be subject to aneurism in its *cervical*, *petrous*, and *intracranial* portions; Erichsen does not mention it; Gross refers to it as having occurred in a few instances; Bryant makes no mention of it. Yet, scattered through the literature of the last half century are a number of cases of spontaneous aneurism of this artery. The rarity with which we meet with aneurism in this artery is explained by its almost complete exemption from the degenerative changes which affect arteries in other portions of the body.

Of cases of traumatic aneurism, he had been able to find upon record but a single case—that of Dr. W. T. Briggs, of Nashville. This was the result of an incised wound, and was operated upon successfully in 1871, the condition being such as to permit a ligation of the internal carotid. In consequence of the sheltered position and great depth of this vessel, it is rarely wounded; and, when this is the case, the accident is usually rapidly fatal.

He has not been able to find upon record, in the literature accessible to him, any reference to gunshot injury of the internal carotid followed by aneurism. The following case, therefore, seems without a counterpart in the annals of surgery:

Eliza J., colored, æt. seventeen, was shot by her husband in the latter part of December, 1884, or 1st of January, 1885, the weapon used being a revolver carrying a ball of 32 calibre. At the moment of firing he stood about two feet distant from her, and a little to her right. The bullet entered the cheek over the malar bone, a little anterior to its junction with the zygoma, ranging backward. The shot was followed by immediate and profuse hemorrhage from the wound of entrance, there being no wound of exit. This was controlled by pressure. The patient stated that there was also hemorrhage from the ear at the time of shooting,

and that it occurred two or three times afterward; and hemorrhages from the mouth and nose after rising in the morning. Some swelling occurred immediately between the ramus of the jaw and the mastoid process. This swelling has been growing larger and larger, until now, April 2, 1885, it projects into the pharyngeal cavity, crowding the tonsil over to the median line, and resting against the uvula. Externally it extends from the inferior surface of the petrous portion of the temporal bone above, to the level of the hyoid bone below. The tumor pulsates in every direction, and has a marked aneurismal bruit and thrill. The walls of the sac seem thin, especially upon the pharyngeal side.

Immediately after the shooting there was paralysis of the pharyngeal muscles of the right side, and the patient lost the sense of taste on the right side of the tongue, which, when projected, inclined to the right side. It is somewhat atrophied and deeply furrowed on this side. Pressure on the common carotid arrests pulsation in the tumor, and causes it to decrease somewhat in size. There is no difference in the pulsation of the right and left temporal arteries; no difference in size of the pupils, which respond normally. Pain has increased of late, and is needle-like in character. She has persistent headache. Ever since the shooting, there has been a roaring sound in the right ear when the patient lies upon that side. Paralysis of right vocal cord greatly impairs the voice. Appetite poor; patient emaciated; swallowing difficult, owing to regurgitation of fluids and inability to take solids.

Having concluded that he had an aneurism of the internal carotid artery to deal with, he decided to operate upon it. This he did April 4, 1885, assisted by Dr. A. L. Brokaw, Professor Tuholske, and others Ligation conducted in the usual manner arrested the pulsation for a time, but this soon returned. He decided to extend the incision upward in front of the tragus, with the forlorn hope of being able to lay open the sac and tie on its distal side. It was found, however, impossible to reach the trunk in that direction, and all further attempts were abandoned, and the wound was dressed. The case did well until, on the twelfth day, a secondary hemorrhage occurred. The day following he was able to thrust his little finger into the opening whence the blood flowed. Strips of lint were then rolled in iodoform and crowded into the sac, with the effect of completely stopping all hemorrhage. The patient did well, except that her temperature ranged from 101° to 103° until the 29th (twenty-five days after operation), when death occurred from exhaustion. Epileptiform convulsions also set in ten days after the tenting of the sac, involving the facial muscles and the flexors of the arms and hands. The fever was doubtless septic.

A hasty post-mortem, made in part under the direction of the coroner, confirmed his opinion in regard to the nature and extent of damage done to the internal carotid, but badly damaged the specimen, the strips of lint having been removed before he had an opportunity to witness their position in the sac.

In speaking of the diagnosis of aneurisms of this vessel, he said that this would rest on the same principles that form the basis of diagnosis of aneurisms of the carotid system. The greatest danger of error would lie between aneurism and abscess in this region.

Aneurism of the common carotid at its bifurcation is the usual situation when in the upper portion of the vessel, and its superficial position and spontaneous origin would practically determine the diagnosis. Neither would this project into the pharynx, as would aneurism of the internal carotid. Aneurisms of the external carotid and vertebrals are, with the rarest exceptions, traumatic. The direction of the wound would also aid in diagnosis. Lying below the muscles, aneurism of the internal carotid would not project outward to a marked degree. In the case reported, Dr. Prewitt was aided in his diagnosis by the symptoms indicating injury of the glosso-pharyngeal and possibly the pneumogastric nerve, and nowhere is there such juxtaposition of artery and nerve as to permit wounding of both, as at or near the carotid foramen. This sufficed to make the diagnosis a positive one, in spite of the great projection of the tumor beyond the surface.

In regard to treatment, none of the usual methods was indicated in this case, except ligation. The failure of the operation to arrest permanently the flow of blood into the aneurism was easily explained on the ground of an abnormally free collateral circulation.

With regard to the cause of death after ligature of the common carotid artery, he quoted Dr. Norman Cheever, who speaks of the frequency of cerebral symptoms in those who do not die at once, and the contrary statement by Sir William Ferguson. In the case reported to-day, there were no cerebral symptoms until the nineteenth day, when convulsions occurred, due rather, as he supposed, to a thrombosis of the sinuses than to diminished blood-supply to the brain.

Dr. J. Ford Thompson remarked that he had never seen a case of traumatic aneurism of the internal carotid external to the cranium, and judging from the small number of cases that have been reported, he thought it probable that such an experience fell to the lot of but few. The diagnosis in the case of Dr. Prewitt seemed to be perfectly clear. He did not believe that, as a rule, the diagnosis of traumatic aneurism of this vessel would be a difficult matter, although the source of hemorrhage might, for a time, remain a matter of doubt. The bulging of the tumor would be almost pathognomonic. A case is reported by M. Ferrier in which the bulging internally of the tumor was a marked characteristic. The case terminated fatally before operative measures had been resorted to. M. Récamier was called in to see the patient, and while in the act of examining him the abscess aneurism ruptured, and the patient died in a few moments. Neufarth, in 1851, reported a case following a blow upon the right side of the head, in which the internal protrusion of the tumor was observed. This case also terminated by a hemorrhage into the fauces. The autopsy established the correctness of the diagnosis.

A number of cases of intracranial aneurism of this vessel have been reported, but they are, of course, foreign to this discussion.

With reference to the case of Dr. Briggs, he remarked that it was one of great interest, and probably the only one of exactly that character on record. The only case of which he was aware that at all resembled it, and that for the most part in the method of operation employed, was that of Mr. Syme, reported in 1851. Syme's case was not, however, an aneurism of the in-

ternal carotid. This case was one in which the operator had, before entering upon the operation, clearly studied out his diagnosis and the exact steps of the operation he purposed employing. The steps of the operation were closely described by the speaker. It was, he continued, one of the most brilliant surgical feats of that or of all time, and was, he thought, looked upon by Mr. Syme to his dying day as the great triumph of his life. He further suggested the possibility that Dr. Briggs had been guided in his method of operation by the report of this case, but, however that was, he deserves great credit for his success.

The case of Dr. Prewitt, he said, is open to the criticism that it exposed the patient to a severe and dangerous operation without affording any relief from the suffering. It was of interest to us, however, as demonstrating the uselessness of ligating the common carotid for aneurism of the internal carotid. He thought it would have been better if the operator had followed the course of Dr. Briggs, or that proposed, although not yet tried, by Mr. Guthrie. The steps of the latter operation were reviewed. Preference for Syme's operation was expressed.

There is nothing more difficult than to determine what is the best course to pursue in a case of this kind. This is made apparent when an operator like Récamier permitted a patient to die of hemorrhage right under his eyes. Many cases would probably terminate as well if let alone as if subjected to operation. Where operation is performed, the sac should be opened and the vessel ligated at both ends where this is at all possible. It is not to be inferred, however, in a case in which ligation does not stop the pulsation in the sac, that the operation can be of no benefit. We frequently see reported cases of ligation for traumatic aneurism by the Hunterian method. This the speaker thought entirely wrong, as that operation is in no way applicable to this class of aneurisms.

DR. BRIGGS then narrated the accident by which he was "innocently" brought into the case to which reference had been made by the previous speaker. The operation was performed before a class of students, and was entered upon before the operator had any definite idea of the condition for which it was required. The vessel was simply dissected out until the point of injury was reached, then the sac was opened and ligatures applied. The patient still lives. The previous speaker, he continued, was correct in his supposition that he had proceeded in the case according to the method of Syme, as he had that case in mind, as well as the statement of Guthrie, that nothing will stop the regurgitation of blood into the sac, short of ligation on both sides of the aneurism.

DR. D. HAYES AGNEW stated that about three weeks ago, a lady from New Jersey came under his care at the Pennsylvania Hospital, with a tumor as large as an orange, just behind the angle of the jaw, and projecting internally into the pharynx. It had grown slowly for about eight months, and was attributed by the patient to a blow she had received on the side of the head. He found that by making pressure on the internal carotid, the tumor was reduced materially in size. It had a distinct pulsation and a distinct bruit. He was led to believe that the case was one of aneurism of the internal carotid artery. He operated, tying the primitive carotid immediately above the omo-hyoid. Most of the pulsation was arrested, but there was still some pulsation. This, he concluded, was from communication with the external vessel. The incision was at once prolonged, and the external thyroid tied, almost completely arresting pulsation. He then tied the lingual, and the pulsation entirely disappeared. The patient did well for a week, but at the expiration of that time pulsation again appeared. He found that upon making pressure on the carotid of the opposite side, all pulsation and sound disappeared. The tumor was very large and the integument over it very thin; the mucous membrane covering it on the internal side was also thin. He was called away from the city, however, and left, supposing that the patient would do well, being absent but a day. Ulceration occurred in the tumor, and there was a large gush of blood into the fauces. One of the internes attempted to arrest the hemorrhage by filling the cavity, but the patient died of septic poisoning a few days after. Although this case was one of spontaneous aneurism of the internal carotid, he thought it had a bearing on the subject before the Association. He had himself decided that if rupture occurred he would divide the jaw, expose the tumor, and tie on both sides. This operation, he thought, should be a primary one, performed promptly, without waiting to experiment with other methods.

DR. A. VANDERVEER said that he thought the remarks of Dr. Agnew were in the right direction, but there are cases in which he thought it better to resort to other methods before a radical operation is attempted. He then narrated a case that had occurred and been treated by him in 1882. The patient was a strong farmer, accustomed to hard work. He stated that during the fall preceding, his work compelled him to hold his head almost constantly to the right side. By the preference of the patient, compression was resorted to. After six days of this treatment, the tumer was reduced in size and appeared firmer. The patient returned home. In two months he came back; the tumor was as large as it had been before, and the wall seemed a little thinner. Compression was tried for six days continuously, with a marked diminution in the size of the tumor—so much so that it did not enlarge when the compression was suspended. He was sent home with only a compress on the tumor. He appeared to be in good health and did well for four or five weeks, when he suddenly complained of a severe pain in his head, and fell dead. A post-mortem examination was made, but it failed to reveal the rupture of any vessel, hemorrhage, emboli, or, in fact, anything that could account for his death. The specimen of the artery which was sent to the speaker showed that there was a slight dilatation of the vessel, but that the walls were very much thickened, and firm.

DR. L. MCLANE TIFFANY remarked that there was between the two cases reported, the most marked difference, to which attention had not been called. One was so far away from the skull that it could be treated according to the ordinary rules of surgery, while the other was so close to the skull that a distal ligature could not be applied. It is doubtless proper in all cases to apply the distal ligature, where this is possible. He then narrated the case of Dr. Twitchell, of New Hampshire, reported in 1805. A young man had part of his neck shot away in a Fourth of July celebration. One day, while Dr. Twitchell was in the house, the vessel

gave way. He put his finger into the rent, stopped the hemorrhage, ligated below the rent, removed his finger, and found the hemorrhage as free as ever. Concluding that there was not room to put a ligature above, he put on a graduated compress, and the patient recovered.

The only possible improvement in the treatment of Dr. Prewitt's case would have been the laying open of the sac. It would have been proper also to make compression above the wound, pressing up against the base of the skull, afterward treating the wound itself by compression.

With regard to the division of the jaw, the speaker thought it a measure to be decided upon only in presence of a case. The speaker then narrated a case of post-scarlatinal abscess which eroded the internal carotid of a child, between three and four years of age. There was marked swelling of the abscess developing rather suddenly, indicating that the bloodvessels had ruptured into the abscess. The cavity was opened by the speaker and Dr. Smith, of the same city, the contents quickly evacuated, the point of rupture found and closed by the finger, and the bloodvessel ligated.

Dr. Briggs stated that there had been a misunderstanding of his case on the part of a previous speaker, inasmuch as the opening in the vessels had been very close to the carotid foramen.

Dr. Prewitt, in closing the discussion, remarked that if he had read the case of Ferrier and Récamier aright, the diagnosis had not been properly made, and that it had not been treated as a case of aneurism, as supposed by Dr. Thompson, It had been treated as an abscess. When Récamier was called in to see the case the throat had never been inspected, and it was while he was in the act of forcing the child's jaws apart that the aneurism burst. He agreed fully with that speaker that the old operation is the preferable one where it can be performed, but he was confident that an examination of the specimen from his case would show that the operation could not have been performed in his case. He agreed also with Dr. Agnew as to the advisability of dividing the jaw and turning away the ends in order to expose the vessel. In this case, however, he feared that the vessel was too closely adherent to the jaw to admit of its being sufficiently separated therefrom to permit of the division of the jaw.

With reference to compression, he said that he had no doubt that it would act well in certain cases, but that in a case like this he would be afraid to wait long enough to attempt it; this was in reality his reason for not doing so, as the method had been proposed. It would have been a bold undertaking, the speaker continued, to have opened the sac in his case. True, it could have been stuffed if hemorrhage had occurred, but he was of the opinion that the lint that was introduced was in part, at least, to blame for the fatal termination.

THE AMERICAN CLIMATOLOGICAL ASSOCIATION.

Third Annual Session, held at Philadelphia, May 10 and 11, 1886.

Monday, May 10.—First Day.

The Association met in the Hall of the College of Physicians, and was called to order at 3 o'clock P. M., by The President, William Pepper, M.D. of Philadelphia.

The President opened the session with an address on

THE CAUSES AND DISTRIBUTION OF CONSUMPTION IN PENNSYLVANIA.

He wished this to be considered simply as a preliminary report. The data obtained, while not sufficient to warrant any positive conclusions, seemed to indicate that consumption is most prevalent in the counties of low altitude, where the rainfall is greatest, and that the number of deaths in proportion gradually diminishes as higher elevations with a smaller rainfall are reached, until when an altitude of 2000 feet is obtained, the death-rate has diminished to less than one per 1000.

The city of Philadelphia was separately considered. In a period of twenty-six years it was found that there had been 60,000 deaths out of a total of 400,000, the rate for each year being quite uniform. The rate among negroes is over twice that of the general population. Among the foreign population the death-rate is also in excess of the people at large. Deducting the deaths among negroes and foreigners, the true mortality among the Americans in Philadelphia is much lower than is commonly believed. The percentage of deaths from consumption as compared with the total number of deaths is by this method nine and a half per cent., as contrasted with fourteen per cent., the rate when all classes are included.

Dr. A. L. Loomis, of New York, then read a paper on

THE EFFECT OF HIGH ALTITUDES ON CARDIAC DISEASE.

In the summer of 1880, while at St. Regis Lake, in the Adirondacks, he was requested to see a gentleman who had just arrived, and was thought to be dying. The patient, aged forty years, was found gasping for breath, cyanosed, with no apparent radial pulse, and bathed with profuse perspiration. Neither heart sound could be heard. Under the hypodermatic use of digitalis, morphia, and brandy, he improved. The following day it was learned that he had left New York apparently perfectly well. When he reached an elevation of 1000 feet, his breathing became difficult, and as a higher altitude was reached the difficulty was increased, and was accompanied by cardiac palpitation and a sense of oppression in the epigastrium. When he reached St. Regis Lake, at an elevation of 2000 feet, he appeared to be dying. Physical examination showed well-marked dilatation of both ventricles, with a loud systolic murmur heard over the præcordia and transmitted a little to the left. At the end of three days he returned to New York. As he reached lower levels, the difficulty of breathing diminished, and when he reached the level he could walk. The irregular heart action however continued, and the feet soon became œdematous, and he died six weeks later with general anasarca and heart insufficiency. No autopsy was made. The patient had never presented any evidence of cardiac disease prior to his trip to the mountains.

Dr. Loomis had seen in all twenty-six similar cases, the histories of five of which were given.

In all the cases coming under his observation the ventricular dilatation was unquestionably the cause of the sudden development of distressing symptoms, and the commencement of the fatal issue seemed to be

directly due to the effects on the cardiac circulation of a change from a lower to a higher altitude. The probable explanation of these cases was then considered. He first referred to the nervous supply of the heart. The quality of the atmosphere, which is probably the only operative factor under the circumstances, is the diminished density.

The two important elements leading to permanent cardiac insufficiency are, first, the condition of pulmonary distention consequent upon rarefaction of the atmosphere; and second, the resultant condition of the circulating blood. In the first, the terminations of the vagus are excited by the distention of the lungs; by the excitation of these afferent fibres the cardiac walls and inhibitory ganglia of the medulla are paralyzed or weakened. The inhibitory control being lost, the diastolic intervals are shorter and the rhythm increases, but the amount of work accomplished is not proportionate to the visible cardiac energy. The change in the blood which acts as an important, and ultimately the principal factor in producing the cardiac insufficiency, is the deficiency in oxygen. The vasomotor centres, influenced by the want of oxygen in the blood-supply, excite a general contraction of the arterioles of the body, filling the veins and affording a large heart-supply, while the arterial pressure rapidly rises as the peripheral resistance is increased. Ordinarily, the heart would relieve itself by excitation of the cardio- and vaso-inhibitory centres, but these centres are held in abeyance by the condition of the blood circulating in the medulla. This increase in the intracranial pressure cannot continue, and sooner or later the heart passes into a state of diastolic relaxation, which is the primary step of a condition of ventricular dilatation. It is not improbable that the blood heavily laden with carbon dioxide, also acts as a disturbing factor of the normal action of the heart through this same afferent mechanism.

If the explanation of the effects of high altitude upon the cardiac circulation be accepted, the risk which one with even slight cardiac insufficiency runs by passing from a lower to a higher altitude is certainly very great, and if the insufficiency is extensive, such changes become immediately dangerous. It must be remembered that cardiac insufficiency may exist in those who give no evidence of it.

Clinically, he relied upon what is termed the muscular element of the first sound of the heart in determining the condition of the muscle walls. The absence of the muscular element of the first sound indicates a failure in the integrity of the heart power, which would lead him to caution such a one against passing rapidly from a lower to a higher altitude. Clinical experience had also convinced him that it was unsafe for one to make such change whose cardiac rhythm was greatly disturbed by nervous excitement by rapidly ascending a long flight of stairs.

Dr. Frank Donaldson, Jr., of Baltimore, then read

A PRELIMINARY ACCOUNT IN REGARD TO CIRCULATORY AND RESPIRATORY CHANGES OBSERVED IN ANIMALS PLACED IN THE PNEUMATIC CABINET.

The experiments had been performed by Professor H. N. Martin, of the Johns Hopkins University, and the writer. The animals employed were rabbits, which had been chloralized. It was found—

1. When the animal is breathing air from outside of the cabinet, rarefaction of air within the cabinet causes a marked fall of general arterial pressure, but has no influence on the pulse-rate. The fall of pressure lasts only a short time (ten to twenty seconds), and is often followed by a temporary rise above the normal.

2. This fall of systemic arterial pressure depends on two factors: greater flow of blood to the skin when the air around the animal is rarefied, and greater accumulation of blood in the lungs when they are distended.

3. Of these two factors, accumulation of blood in the lungs is the more effective, for if the animal breathes air from the cabinet, and not from the outside, rarefaction of the air within the cabinet (in this case accompanied by no special expansion of the thorax) has but a trivial effect in lowering arterial pressure.

4. When the animal is breathing external air, rarefaction of the air within the cabinet usually has no effect upon the respiratory rate nor upon the extent of individual respiratory acts, unless the fall of blood-pressure be considerable. If it be considerable, symptoms of anæmia of the medulla oblongata show themselves. In some cases there is more forcible dyspnœic breathing, and, in some, dyspnœic convulsions similar to those which occur when an animal is bled to death, and due to the same cause, viz., deficient blood flowing through the respiratory centre.

5. The rapid recovery of general arterial pressure, while the animal is still in a rarefied atmosphere but breathing external air, is probably due to excitation of the vasomotor centre, which, as is well known, is excited whenever the blood supply is defective.

6. The brain, enclosed in a rigid box which is practically unaffected by variations in the atmospheric pressure, has its circulation more disturbed in the pneumatic cabinet than any other organ, with the exception of the lungs.

7. Compression of the air within the cabinet while the lungs are in communication with the external air, causes a considerable transient rise of blood pressure. This is probably mainly due to the forcing of the blood from the cutaneous vessels, but there has not yet been sufficient time to investigate this point thoroughly.

8. Compression of the air within the cabinet while the lungs are in communication with the external air, slows the pulse as the arterial pressure rises. This is probably due to excitation of the cardio-inhibitory centre by increased intracranial blood pressure. Further experiments are, however, necessary before this can be positively stated.

9. In certain cases when the air within the cabinet is rarefied and the animal is breathing external air, the respiratory movements cease altogether for several seconds. As to the cause of this physiological apnœa, we are not yet ready to form an opinion. It may be due to extra accumulation of air in the alveoli of the lung, or to distention of the lungs, exciting those fibres of the pneumogastric which tend to check inspiration.

These papers were discussed by Drs. Pepper, Bruen, and Hudson.

Evening Session.

The first paper of the evening was entitled

A CLINICAL REPORT OF CASES TREATED BY PNEUMATIC DIFFERENTIATION.

by Dr. H. F. Williams, of Brooklyn.

The reading of the paper was preceded by a demonstration of the cabinet, showing the different methods of application of the apparatus. The speaker reported forty-five cases in which the cabinet had been employed, and described sixteen cases in detail.

Dr. V. Y. Bowditch, of Boston, then followed with a paper on

TEN MONTHS' EXPERIENCE WITH PNEUMATIC DIFFERENTIATION.

He gave the clinical results of the treatment of twenty-seven cases since June 30, 1885. Pulmonary phthisis, in its tubercular and non-tubercular forms; bronchitis, in its acute and chronic forms, with and without emphysema or asthma; and retraction of the lung from long-standing pleuritic effusion, were the diseases which he had treated in the pneumatic cabinet. His experience was such that, although he had been unable to accomplish thus far such brilliant results as some others had claimed, yet he felt convinced of the very marked beneficial effect of the cabinet in many cases where other means had failed to give relief, and of its curative power in one case of incipient tubercular trouble, and he looked forward with hope to what may be done in the future with this new method of treatment.

THE PHYSICS AND PHYSIOLOGICAL ACTION OF PNEUMATIC DIFFERENTIATION.

Dr. J. H. Platt, of Brooklyn, said he believed that the effect of reduced air-pressure upon the periphery of the body is to increase the expansion of the thorax in inspiration, and to diminish its contraction in expiration, consequently to increase the amount of residual air. By the increased pressure in the lungs it will tend to exsanguinate them, and to raise the arterial blood-pressure in the general circulation. He believed that such benefit as results from the use of the cabinet is due mainly to the reduction of congestion in the lungs by the air-pressure within them, and by the increased expansion and movement of the lungs favoring their greater action, and modifying their nutrition.

The President, in calling for discussion upon the preceding papers, referred to the apparatus of Waldenberg and the neglect of any reference to this method of treatment in most papers on pneumatic differentiation. The use of this apparatus, with proper hygienic and dietetic restrictions, is so gratifying that it cannot be forgotten in a discussion of this kind. It must be remembered that this plan of treatment is simply an adjuvant to hygienic and dietetic treatment.

Dr. Loomis, of New York, considered that the most useful application of the pneumatic cabinet was in pulmonary gymnastics. He had never seen any evidence that sprays or vapors reached the lungs, and he had never seen any effect on the bacilli from these.

There are certain cases of phthisis which always present a sluggish circulation of the periphery, and which pass rapidly from one stage of the disease to another. In these cases the use of the cabinet in the Sanitarium in the Adirondacks had an exceedingly favorable influence upon the capillary and general circulation, while the pulmonary lesions remained without change. Such patients have gained in weight and flesh. The use of the instrument is not to be confined to pulmonary disease. In anæmia and nervous diseases, with feeble circulation, the apparatus may be found of benefit.

Dr. J. Solis Cohen, of Philadelphia, thought that the results recorded from the use of this apparatus were no better than those obtained by older and simpler forms of apparatus. He reported patients in advanced stages of phthisis whose lives had been prolonged ten years by the use of the Waldenberg apparatus. He agreed that the principal advantage was from the pulmonary gymnastics.

Tuesday, May 12.—Second Day.

Morning Session.

The report of the Committee on Health Resorts was received and ordered printed in the proceedings.

Dr. Roland G. Curtin, of Philadelphia, then read a paper on

ROCKY MOUNTAIN FEVER.

From his own experience and from correspondence with residents in Colorado, he concluded that Rocky Mountain fever is not a specific fever. Under this head he thought that probably there had been classed cases of typhoid fever, typho-malarial fever, and ordinary continued fever. In these altitudes, these diseases are undoubtedly largely modified by the conditions present. The various influences which might tend to alter the aspect of the disease were then referred to.

Dr. E. W. Schauffler, of Kansas City, confirmed this opinion.

Dr. C. C. Rice, of New York, then spoke of

HOW THE THERAPEUTIC VALUE OF OUR MINERAL SPRINGS MAY BE INCREASED,

and presented the following conclusions:

1. Physicians should make a careful analysis of our mineral springs.

2. The medicinal value of the waters should be tested by clinical investigation, and the conclusions published for the benefit of the profession.

3. If the waters are found to present marked merit, the physician should interest himself in developing the springs, improving the baths, etc.

4. Physicians, in sending patients to the springs, should be more careful to select the proper water, and should send with the patient the diagnosis and history of the condition, for the benefit of the physicians at the bath.

5. The patient, while at the mineral spring, should be under a more rigid medical discipline.

The discussion of this paper was participated in by Drs. Bruen, Van Bibber, and Kretschman.

Dr. Didama, of Syracuse, read a paper on the

CLIMATE OF MEXICO.

The paper was based upon somewhat conflicting communications from physicians practising in Mexico.

Dr. Edward T. Bruen, of Philadelphia, followed with a paper on

THE SOUTHERN ADIRONDACKS,

describing his experience in this locality, giving the results of meteorological observations, and describing the classes of patients likely to be benefited by a sojourn in these regions.

Dr. E. A. Schauffler, of Kansas City, then spoke of

THE CLIMATE OF EL PASO, TEXAS.

El Paso is 340 miles south of Santa Fé, and is 3700 feet above the sea level. The soil is sandy and porous.

The great advantages of this climate is the mild winter and the small rainfall. The annual mean temperature is 61.59°. The winter mean is 47.9°. The average rainfall for several years has been about twelve inches. The winter months are the dryest of the year. The air is exceedingly bracing and tonic.

DR. A. N. BELL, of New York, read a paper describing

SOUTHERN PINE PARKS,

a new health resort of North Carolina.

AFTERNOON SESSION.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Dr. F. Donaldson, of Baltimore.

Vice-Presidents.—Drs. V. Y. Bowditch, of Boston, and Roland G. Curtin, of Philadelphia.

Secretary and Treasurer.—Dr. J. B. Walker, of Philadelphia.

Additional Member of Council.—Dr. F. C. Shattuck, of Boston.

A communication was received from the Committee of the American Surgical Association, inviting the Society to appoint a Committee to confer with like committees from the other special societies in reference to the organization of a

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

The communication was approved, and the following committee was appointed: Drs. A. L. Loomis, of New York; F. Donaldson, of Baltimore; F. C. Shattuck, of Boston; E. T. Bruen, of Philadelphia; and W. W. Johnston, of Washington.

DR. H. B. BAKER, of Lansing, Mich., then read a paper on

THE CAUSATION OF PNEUMONIA.

The atmospheric condition, he said, which is most closely associated with pneumonia, is the night azone, but although this is perhaps one factor, it is probably not the controlling force. He believed that the statistics which he presented showed that the causation of the disease is absolutely controlled by the meteorological conditions.

DR. J. H. MUSSER, of Philadelphia, then offered some

SUGGESTIONS REGARDING THE PREVENTION OF PHTHISIS IN MILL HANDS.

He showed that states of ill-health are common in this class of artisans, and asserted that it is very largely due to an inadequate supply of food, which is improperly selected and prepared, and to carelessness in attention to digestion. This cause obtained more largely than bad hygienic surroundings, or the occupation itself. If this be true, the remedy is to have the system of the Willimantic Cotton Company used by all mill proprietors. That company has proven by experience and careful calculation that it pays them in quality and quantity of work done to supply milk to their boys and bouillon to their women twice daily, and that the health of the operatives is promoted, and their lives prolonged thereby.

DR. C. L. DANA, of New York, read a paper on the

INFLUENCE OF HIGH ALTITUDES WITH REFERENCE TO NERVOUS AFFECTIONS.

The observations had been made by physicians at Colorado Springs. The climate seemed to be unfavorable for nervous affections in children, such as chorea. It seemed to be bad for nervous affections in women. High altitudes do not necessarily injure epileptics. In chronic obstinate insomnia in anæmia and malnutrition, the high altitude appears to be beneficial. In chronic affections of the cord the effects seem to be unfavorable.

He thought that the climate tended to produce lithæmia and arthritism, with consequent irritation of the nervous system. The best results are obtained in debility, neurasthenia, and especially in anæmia, insomnia, and melancholia associated with anæmia and malnutrition.

A vote of thanks was extended the College of Physicians of Philadelphia for the use of its Hall, and the Association adjourned *sine die*.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, April 15, 1886.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

COLLES'S FRACTURE.

DR. L. A. STIMSON presented a woman twenty-three years old who received a Colles's fracture of the right wrist four weeks ago to-day, for which she had been treated in the Presbyterian Hospital. The lower fragment was markedly displaced upward and backward in the usual manner. The displacement was reduced by traction on the hand and coaptative pressure, and the limb kept between anterior and posterior splints, of which the latter reached to the wrist, and the former to the metacarpo-phalangeal line, and bore at its distal extremity a woollen bandage placed obliquely, over which the fingers were flexed, and by which the hand was kept in dorsal flexion. Since the last meeting of the Society, three weeks ago, he had taken pains to have the fingers freely and frequently moved; this motion had at no time caused pain. The limb was taken from the splints this morning. The reduction was complete; even the styloid process of the radius was as low as on the other wrist; a result made possible, in his opinion, only by the absence of notable crushing of the spongy bone at the time the fracture was received. The fingers could be easily and freely flexed and extended; the range of voluntary motion of the thumb was less than normal; passive pronation and supination were possible through an arc of nearly seventy degrees. The case, he thought, proved that voluntary and passive movements of the fingers during the treatment of Colles's fracture did not always cause rigidity of their joints.

FRACTURE OF THE LOWER END OF THE RADIUS.

DR. R. J. HALL presented three of the patients whose cases he reported in a paper read at the last meeting of the Society, being the only ones who had responded to his request that they should be present at the meeting to-day. One was a boy, in whom the result was reported as perfect; in the second, a fracture eight weeks old, there was considerable rigidity of the fingers and limitation of motion, but the position was good; the case had been reported among the imperfect results in the paper. The third patient was also one in whom the result had not been reported as perfect, as there was

slight lateral displacement of the hand, but perfect motion of the fingers and wrist.

EPIPHYSARY EXOSTOSIS AT THE UPPER INNER PORTION OF THE HUMERUS.

DR. L. A. STIMSON presented a man forty-five years old, with a large epiphysary exostosis at the upper inner portion of the right humerus. The right humerus was three-fourths of an inch longer than the left; the bones of the forearm and of the lower extremities were of the same length on the two sides. Dr. Stimson asked whether the members of the Society had ever met with a similar coincidence. It is known that the greater part of the growth of the humerus in length takes place at its upper end, and also that these exostoses are outgrowths from the epiphysary cartilage, which is the active agent in effecting growth in length. It seemed to him, therefore, that the two abnormalities in this case could be referred to one cause, exaggerated functional activity of the upper epiphyseal cartilage.

The individual was unaware of the presence of this exostosis until his attention was called to it a fortnight ago, six weeks after he had received a violent blow upon the outer side of the same arm at its middle, which was said to have caused a fracture of the bone, but of which no sign was then present.

DR. MARKOE, and other members of the Society who examined the patient, remarked that the growth could be felt very distinctly.

THE PRESIDENT inquired whether the exostosis caused the patient any inconvenience.

DR. STIMSON replied in the negative.

DR. MARKOE remarked that it was altogether probable that, as the exostosis continued to grow, it would offer a mechanical obstacle to the movement of the shoulder-joint.

DR. STIMSON thought growth had ceased, for the man was forty-five years of age.

DR. MARKOE said that was possibly true, but in the large majority of cases of exostoses in the neighborhood of the knee-joint the history was one of progressive increase. Some years ago he presented the specimens taken from a patient in whom the tumor had been growing from the upper end of the tibia for about fourteen years, projecting into the popliteal space; its mechanical interference with flexion and the return circulation gradually increased, finally making it necessary to perform excision (which was done ten or eleven years ago). There had been no further trouble. At the time of the operation, the patient was thirty-seven years old. The other cases which he had seen, and which he had made the basis of a paper not long ago, were of a more recent date, although of several years' standing, and the tumors were all growing at the time he operated.

DR. STIMSON thought that in some cases the growth took place from cartilage remaining at the tip of the process.

DR. MARKOE said they were developed in the neighborhood of the epiphyseal cartilage, but whether the cartilage had anything to do with the growth of the tumor, he could not say. In some the development was so far from the epiphyseal line that he had doubts whether in those cases it took place from the cartilage. In one case, the distance between the growth and the epiphyseal line was three fingers' breadth.

DR. STIMSON remarked that the explanation which he had seen was that they grew from a separate portion of cartilage.

DR. MARKOE: Yes, from a remaining rudimentary portion.

DR. HALL mentioned a case in which a patient sustained an injury from earth falling upon him, and while under treatment a large tumor was discovered, never previously noticed by the patient, on the inner side of the thigh, between the vastus internus and the adductors. As it was movable, it was thought to be broken off, but this supposition proved to be erroneous, as movement was permissible through its very thin attachment to the linea aspera. Its base was about five inches in length; it was leaf-like in shape, and had developed in the intermuscular septum, being one of those rather rare cases of exostosis aponeurotica. The superficial femoral artery lay in a groove on its posterior surface.

DR. STIMSON had seen the report of a similar case—one of exostosis with a broad implantation on the inner side of the lower end of the femur, which had been broken off by the woman crossing her limbs.

DR. MARKOE said there were specimens in the New York Hospital museum, and also one in the museum of the College of Physicians and Surgeons, of bony tumors with broad attachments developed from the lower portion of the linea aspera. But these cases were altogether different. He did not think they developed from cartilage at all.

ANEURISM OF THE EXTERNAL ILIAC.

DR. T. M. MARKOE presented a man who had entered the New York Hospital, in March, 1886, having a short time before noticed a large tumor in the upper part of the femoral region. The tumor was a very actively pulsating aneurism, extending apparently a certain distance underneath Poupart's ligament, and causing considerable œdema and pain by pressure upon the femoral vein and nerves. There was no apparent clot in the cavity. The interference with the return circulation and the pain became so marked that an operation was called for, and he ligated the external iliac artery on March 11th. Drainage by a leash of catgut was employed, and the wound rapidly healed without suppuration. The case was interesting in the fact that slight pulsation had returned at the end of a week. It had increased somewhat during the last ten days. Of one hundred cases of aneurism so treated, reported by Norris, pulsation returned in only six cases. The patient stated that the tumor was decreasing in size, and that he was free from pain. The epigastric artery was noticed during the operation to be very large.

DR. MARKOE then read a paper on.

FIBRO-SARCOMA OF THE MEDIAN NERVE.

THE PRESIDENT presented a tumor which he had removed in February last from a patient aged twenty-seven years, who said he had noticed a small tumor on the inner side of the right arm six years ago. The tumor had gradually grown without giving any special inconvenience or pain until a month before the operation, when he complained of slight pain in the elbow and forearm. Pressure upon the tumor produced sharp, tingling pains in the hand. The growth was situated on the inner side of the upper third of the right arm, and, when cut down upon, it was found to be fusiform

in shape, and to have deep attachments, being apparently a tumor of the median nerve. On cutting through its capsule the fibres of the nerve could be seen very distinctly spread over its surface, but the major portion of the tumor lay posterior to the nerve. The entire growth with its sheath was removed, with no further injury of the nerve than the division of a few of its strands which were connected with the tumor. A part of the wound was united with catgut, and healed readily, the patient having no further inconvenience than some tingling sensations in the hand and forearm and desquamation of the epithelium of the hand, which disappeared at the end of the third week. When he examined the patient recently the only difference observable between the upper extremities was a slightly diminished grasp in the right hand. The motions were perfect. The specimen was examined microscopically by Drs. Peabody and Ferguson, who pronounced it a fibro-sarcoma.

Dr. Gerster asked whether, in view of the fact that there was liability to early recurrence of the growth, it would not have been justifiable to resort to a more radical operation.

The President replied that it would have been necessary to remove at least two inches and a half of the nerve in order to feel assured of the total extirpation of the growth, which would have rendered it impossible to restore the continuity of the nerve; nor should he want to amputate the arm as a primary operation. The growth had required six years to attain its present size, and, should it recur, there would then be time to consider a radical operation, but he did not think a radical operation would have been justifiable in the first place.

CORRESPONDENCE,

ERROR IN STATEMENT OF RESULTS OF BATTEY'S AND TAIT'S OPERATIONS CORRECTED.

To the Editor of The Medical News,

Sir: In his "Note on Removal of the Uterine Appendages" (page 456, current volume of The Medical News), Mr. Lawson Tait inadvertently says of my original operation: "It was first performed by Battey, with a *fatal* result, on August 17, 1872, and, therefore, if proper names are to be given to the operations, it deserves to have Dr. Battey's name attached to it."

This case has been so often reported to medical societies, and cited in the journals, in London as well as in America, as a *successful* case, that I can hardly suppose Mr. Tait to be ignorant of the fact. I therefore accept it as a slip of the pen in the hurry of a busy professional life. I can the more readily do this since, in the same connection he is quite as unhappy in reporting the result of his own case, when he tells us "It was first performed by me on August 1, 1872, with a *successful* result. I am, therefore, entitled to have this operation described by my name."

In the *British Medical Journal* for May 31, 1879, we find from the pen of Mr. Tait the following: "Removal of normal ovaries. As a small contribution to the history of this proceeding, I should like to supplement Prof. Simpson's paper by the statement that I have removed the ovaries for the arrest of hemorrhage in cases of myoma three times, *in all three with a fatal result.* The dates were August 1, 1872; December 26, 1873; and March 14, 1874. It will thus be seen that this operation was performed in England five days *after* it was first performed in Germany, and sixteen days *before* it was performed by Dr. Battey. . . . That this operation will prove a great addition to surgery I have no doubt. With our improved methods of operation I believe that at least two, possibly all three, of my cases would recover now, if I had them over again."[1]

To Mr. Tait's claims of priority I have nothing to say. For more than six years (from September, 1872, to May, 1879), during which this subject was actively discussed in medical societies and medical journals, his voice was not heard. There seems little disposition manifested anywhere to reopen the case now for his benefit.

Robert Battey, M.D.

Rome, Georgia, May 6, 1886.

NEWS ITEMS.

Officers of the International Medical Congress.—The Executive Committee of the International Congress, we are informed, have finally elected the following officers for the Washington Congress:

President.—N. S. Davis, of Chicago.

Vice-Presidents.—W. O. Baldwin, of Montgomery, Ala.; William Brodie, of Detroit; W. W. Dawson, of Cincinnati; E. M. Moore, of Rochester, N. Y.; T. G. Richardson, of New Orleans; L. A. Sayre, of New York; J. M. Toner, of Washington; the President of the American Medical Association, the Surgeon General United States Army, Surgeon General United States Navy, Supervising General Marine-Hospital Service.

Secretary-General.—J. B. S. Hamilton, U. S. Marine-Hospital Service.

Treasurer.— E. S. F. Arnold, of New York.

Chairman Finance Committee.—Frederick S. Dennis, of New York.

Presidents of Sections:

Medicine.—A. B. Arnold, of Baltimore.

Surgery.—William T. Briggs, of Nashville.

Military and Naval Surgery.—H. H. Smith, of Philadelphia.

Obstetrics.—Delaskie Miller, of Chicago.

Gynecology.—James H. Harrison, of University of Virginia.

Anatomy.—William H. Pancoast, of Philadelphia.

Physiology.—J. H. Callender, of Nashville.

Pathology.—A. B. Palmer, of Ann Arbor.

Diseases of Children.—J. Lewis Smith, of New York.

Ophthalmology.—E. Williams, of Cincinnati.

Otology.—S. J. Jones, of Chicago.

Laryngology.—W. H. Daly, of Pittsburg.

Dermatology and Syphilis.—A. R. Robinson, of New York.

Hygiene.—Joseph Jones, of New Orleans.

Collective Investigation, etc.—H. O. Marcy, of Boston,

Nervous Diseases.—John P. Gray, of Utica.

Dental and Oral Surgery.—J. Taft, of Cincinnati.

The English Hydrophobia Commission.—The Committee appointed by the Local Government Board to inquire and report upon M. Pasteur's method of pre-

[1] The Italics are mine.

venting the development of rabies in persons bitten by rabid dogs, comprises Sir Henry Roscoe, M. P., Sir James Paget, Bart., Dr. Richard Quain, F.R.S., Professor Burdon Sanderson, F.R.S., Dr. Lauder Brunton, F.R.S., and Mr. Fleming, Principal Veterinary Surgeon of the Army. Mr. Victor Horsley, M.B., F.R.S., Professor-Superintendent of the Brown Institute, has been requested to act as Secretary. The Committee is unpaid, but we understand that a sum not exceeding £300 has been placed at its disposal, to defray the expenses of the inquiry. Sir Henry Roscoe, Professor Burdon Sanderson, Dr. Lauder Brunton, and Mr. Victor Horsley are now at work in Paris.

THE TRANSLATION INTO JAPANESE OF AGNEW'S PRINCIPLES AND PRACTICE OF SURGERY.—From an advertisement before us, we learn that Dr. D. Hayes Agnew's work on surgery is about to be published in Japanese. The translation is being made by Dr. M. Toyabe, and will be revised by Dr. Matsuyama Hoan. This large work will be published in seven volumes, of about 300 pages each, at a subscription price of one *yen* per volume in advance; the fixed price after publication to be ten *yen* ($8.50), office of publication is that of the *Tôkyô Jiji Shinshi* (*Tôkyô Medical Journal*).—*Sei-i-Kwai Medical Journal*, April, 1886.

QUARANTINE IN THE SOUTH.—The Governor of Louisiana has issued a proclamation establishing a quarantine to take effect May 10, against all vessels sailing from inter-tropical American and West Indian ports and arriving at the Mississippi quarantine station.

FOOD FOR THE POOR.—The Baroness Burdett Coutts, Lady Wolseley, and others, have started "scrap" carts, which collect broken food in Belgravia and Mayfair. It is carefully cooked and made into soup, stews, pies, and puddings, and sold at a penny a dish to the poor.

AUSTRIAN HYDROPHOBIC COMMISSION.—Dr. Frisch, the delegate sent by the Austrian government to Paris to investigate the report upon M. Pasteur's system of treatment for hydrophobic disease, in a public lecture has advised the medical profession of the empire to adopt the French savant's report.

CHOLERA INOCULATION IN SPAIN.—The Spanish Sanitary Council has authorized the practice of inoculation discovered by Dr. Ferrán in the event of a recurrence of cholera in Spain.

NOTES AND QUERIES.

THE ANALGESIC ACTION OF THEINE.

To the Editor of THE MEDICAL NEWS,

SIR: I have no desire to monopolize much of your valuable space, but Dr. Castle's note on "The Analgesic Action of Theine," in your issue of the 24th inst., is such a strange misconception of the cardinal intent of my paper on the same subject in your previous issue, that I think it needs a brief reply.

When Dr. Castle says that some of the cases of neuralgia which were reported to me as having been relieved by theine, "might have been similarly relieved by the injection of distilled water," or "by the simple puncture with a needle," he makes a statement, which, instead of being *apropos* to my inquiry, as he believes it to be, is so far from it that no possible line of continuity can be traced between the two. The purpose of my paper is to elucidate the fact that physiological experimentation had shown that theine possesses the inherent power of producing anæsthesia independent of any analgesic effect it might have in disease. The question which arose then was not whether "the injection of distilled water," or "the puncture with a needle," or the application of anything else "might" relieve some or all of the cases to which theine was administered; but whether it could be demonstrated that the anæsthetic property of the latter was sufficiently powerful to accomplish this same object. No one who reflects on the import of the cases there detailed will, I think, deny that theine was remarkably prompt and efficient in performing its task. The broader question whether theine is of superior value in the treatment of neuralgia, remains to be finally decided by the therapeutic law of the "survival of the fittest."

Moreover, by way of digression, I wish to remark, that there exists a delusion among some, from which I do not know whether Dr. Castle is quite free, that the "injection of water," and "the simple puncture with a needle," which are occasionally succesfully resorted to in the treatment of pain, are equivalent to doing nothing—in fact, that they are harmless but effective *placebos*. Yet any one who is acquainted with physiological laboratory work knows very well that water, especially if it is distilled, is highly irritating and poisonous to exposed living organs, and certainly no one will ever suspect that the puncture of a needle is very soothing to any tissue; hence there can be no doubt that these agents act in a way similar to that of the hot iron and blister (unless the puncture extends through the sheath of the nerve and removes some mechanical distention), and have nothing in common with the pain-relieving action of theine.

In conclusion, I wish to add that it was my original intention to discuss the points raised by Dr. Castle, but on account of the size which the paper had already attained, they were omitted. I trust, however, that their true bearing will now be fully understood.

Very respectfully yours,

THOMAS J. MAYS.

April 26, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM MAY 4 TO MAY 10, 1886.

TILTON, HENRY A., *Major and Surgeon.*—From Department of the East to Department of California.—*S. O. 106, A. G. O.*, May 6, 1886.

BROOKE, JOHN, *Major and Surgeon.*—From Department of California to Department of the East.—*S. O. 106, A. G. O.*, May 6, 1886.

COMEGYS, EDWARD T., *Captain and Assistant Surgeon.*—From Department of the Missouri to Department of the East.—*S. O. 106, A. G. O.*, May 6, 1886.

APPEL, AARON H., *Captain and Assistant Surgeon.*—From Department of the East to Department of the Missouri.—*S. O. 106, A. G. O.*, May 6, 1886.

WILSON, WM. J., *Captain and Assistant Surgeon.*—Died May 2, 1886, at Plattsburg Barracks, New York.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 8, 1886.

KITE, ISAAC, *Assistant Surgeon.*—Ordered to Naval Hospital, Brooklyn.

SIMON, W. J., *Passed Assistant Surgeon.*—Ordered for temporary duty to the Naval Academy, Annapolis.

LIPPINCOTT, GEO. C, *Passed Assistant Surgeon.*—Ordered for temporary duty to the Naval Academy, Annapolis.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MAY 1, 1886.

MAGRUDER, G. M., *Assistant Surgeon.*—Appointed an Assistant Surgeon April 24, 1886; assigned to temporary duty at Norfolk, Va., April 26, 1886.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLVIII. SATURDAY, MAY 22, 1886. No. 21.

ORIGINAL LECTURES.

THE PRESENT STATUS OF ABDOMINAL SURGERY.

The Address in Surgery delivered before the American Medical Association, May 5, 1886.

BY N. SENN, M.D.,
OF MILWAUKEE, WIS.

(Continued from page 549)

PYLORECTOMY.

IT is only a few years ago since Billroth announced to the world the feasibility of partial excision of the stomach for malignant disease by a successful operation upon a human being. The members of the medical profession throughout the entire civilized world were unanimous in their admiration of the man who had achieved what appeared to be the greatest triumph of modern surgery. The method of operating was modified and improved by other operators, and in a short time the medical journals teemed with accounts of new cases from different sources. At the present time we are in a position to decide upon the justifiability of the operation. In studying the statistics of the cases so far reported, even the most enthusiastic advocate of the operation must feel that the expectations which had been anticipated have not been realized. The science and art of surgery have both been enriched through the labors of many bold and enthusiastic operators who have demonstrated the feasibility of pylorectomy, but the results obtained must also satisfy every conscientious surgeon that the time has come when the operation should be at least temporarily abandoned until improved methods of diagnosis will enable us to recognize cancer of the stomach early enough to be amenable to surgical treatment.

1. *Malignant disease.* Fourteen cases of pylorectomy for cancer operated upon by Billroth were analyzed by von Hacker as to the pathological conditions and the results which were obtained. He divided them into three classes: 1. No adhesions, disease limited to the coats of the stomach. 2. Slight adhesions, which were readily separated. 3. Extensive adhesions and metastatic tumors in adjacent organs. Only 2 of the patients belonged to the first class; 1 remained well 1¾ years, and the other 3½ years after the operation. In the latter case a tumor returned in the abdominal wall, and another in the injured region, which was removed. The second class embraced 7 cases: 3 died soon after the operation; of the remaining 4, 3 died, 4, 10, and 12 months after the operation, from return of the disease; the fourth suffered from the return of the disease 6 months after operation. The 5 cases represented by the third class died from the immediate effects of the operation. It can be therefore seen that a favorable result can only be hoped for in cases coming within the limitation of the first class, in which the disease is circumscribed and has not passed beyond the limits of the stomach. Everyone must admit the difficulties which surround the diagnosis at this early stage of the disease and the unwillingness of the patient to submit to such a grave operation, when he is comparatively free from suffering, elements which, in accordance with Billroth's own experience, would limit operations to exceptional cases. Such statistics, in the practice of this most eminent surgeon, should definitely settle the question in the mind of any surgeon whose humanity has not succumbed to a morbid desire for transient fame.

Statistics from other sources can show no better results. In 61 cases of pylorectomy collected by Dr. Winslow, of Baltimore (*American Journal of the Medical Sciences*, April, 1885), 50 per cent. have died of shock within 26 hours, and of the cases which have recovered not one has lived for three years without recurrence of the disease at the site of the operation. Kramer has collected 82 pylorectomies, with 61 deaths. In 72 cases the operation was done for carcinoma; 55 died soon after the operation; of the remaining 17, only 1 proved a complete success. It is a source of congratulation to the surgeons of this country, that the statistics above quoted are made up almost exclusively of foreign material. While the American surgeon is anxious and ready to adopt all modern innovations and improvements, in this particular instance he has shown a degree of conservatism worthy of his reputation in that direction. When the time has arrived when we shall be able to make an early positive diagnosis of malignant disease of the stomach, pylorectomy will be resuscitated and will find a ready adoption and a hearty welcome on American soil.

2. *Ulcer of the stomach.* Rydygier was the first to apply pylorectomy to the treatment of gastric ulcer. He excised a simple ulcer of the pyloric extremity of the stomach with a portion of the head of the pancreas, which was intimately adherent to the posterior surface of the stomach. The ulcer had given rise to stenosis and dilatation of the stomach, for which the operation was undertaken. He affirms that resection of a portion of the stomach is a justifiable procedure in arresting hemorrhage from a perforating ulcer of this organ. Czerny treated successfully a case of perforating ulcer of the stomach, by making an incision through the anterior wall, through which the ulcer was made accessible to direct operative treatment. The ulcer was excised and the visceral wounds closed. Recovery was complete and permanent. According to the statistics of Kramer, pylorectomy of the stomach has been done 10 times for ulcer with 4 recoveries and 6 deaths. Cicatricial contraction at the site of operation necessitated a second operation in one case in less than a year after the excision. The danger of secondary cicatricial stenosis would rather tend to indicate the superiority of gastro-enterostomy as a primary operation in these cases, and more particularly so if the ulcer or cicatrix is situated in the narrowest portion of the stomach, the pyloric orifice.

GASTROENTEROSTOMY.

This operation was devised by Wölffler as a substitute for pylorectomy, in that class of cases in which, after an exploratory incision, it is found impossible to extirpate the diseased pylorus. The operation is performed with a view to reëstablish the permeability of the digestive tract, by securing a new outlet to the stomach through the medium of a fistulous communication between it and an adjacent loop of the duodenum, or upper portion of the jejunum. An incision is made through the anterior wall of the stomach, and the margins are accurately stitched to a corresponding incision in the intestine by two rows of sutures applied in the same manner as in cases of enterectomy. As compared with pylorectomy, this operation is easier of execution, affords a wider range of application, and implies the infliction of less traumatism, while on the other hand it has the disadvantage that the pathological conditions which necessitated the operation are left unchanged.

1. *Malignant disease.* The mortality following this operation is much less than after pylorectomy. According to von Hacker, Billroth has performed gastroenterostomy 9 times in cases of cancer of the pylorus in which extirpation could not be practised; of this number, 5 died from the immediate effects of the operation, and 4 survived the operation and were improved for a short time.

Kramer gives an account of 16 gastroenterostomies for malignant disease of the stomach, with 10 deaths soon after the operation; 1 patient died four weeks after, from the effects of secondary tumors, the remaining 5 cases lived for several months. In one case Billroth performed pylorectomy and gastroenterostomy simultaneously upon the same patient. After the excision of the pylorus, the end of the intestine and stomach were closed with sutures and a new outlet for the stomach was established by gastroenterostomy. The patient was doing well five weeks after the operation. From the above accounts of the operation, it will be seen that for malignant disease of the stomach it has been resorted to only in those grave and desperate cases in which excision was found impossible, hence we cannot speak of permanent results, and although the mortality is less than after pylorectomy, it is questionable if the best results that can be obtained by it—a few weeks or months of alleviation—will compensate for the immediate risk of life incident to the procedure.

2. *Non-malignant stricture of the pylorus.* The future will probably assign the proper sphere of gastro-enterostomy to the treatment of grave cases of non-malignant pyloric stenosis. The exclusion of a short space of intestine from the digestive tract by the establishment of a new pylorus by gastroenterostomy, will not interfere with the proper maintenance of health, hence the operation in these cases must be looked upon not only as a palliative but also as a curative measure. The results obtained in this class of cases are indeed encouraging. Kramer has collected 4 cases of which 3 recovered. In one of Rydygier's cases, a man twenty years of age, the diagnosis was made of ulcus pylori with cicatricial stenosis. When the abdomen was opened the stomach was found enormously dilated; nothing further was done, the abdominal incision was closed. As the suffering of the patient continued, he begged that another operation be performed. The abdomen was opened again and a communication between the stomach and duodenum was established by Wölffler's operation, and at the time the case was reported the patient was doing well. From the results already obtained, it must be conceded that gastroenterostomy should be recognized as an established and legitimate operation in the surgical treatment of non-malignant pyloric stenosis.

DUODENOSTOMY.

This operation was devised by Langenbuch, in 1880, for cases of inoperable stenosis of the pylorus. As the name indicates, it consists in the formation of an external permanent duodenal fistula for the purpose of introducing food directly into the intestinal canal. It was intended for cases in which the general debility of the patient would preclude the propriety of the more grave operation of pylorectomy. The operation has been performed by Southam and Robertson, but both patients died on the day of operation. It is not probable that the operation will again be repeated.

JEJUNOSTOMY.

In view of the great mortality of pylorectomy and gastroenterostomy for malignant disease, Pearce Gould planned and executed the operation known as jejunostomy. The object for which the operation is performed is the same as in duodenostomy, only that the intestinal fistula is made in a portion of the intestinal tract, at a point where the mesentery is of sufficient length to permit the bowel to be drawn forward and stitched to the wound. His patient was forty-three years of age, and his vital powers were near to fatal exhaustion. An incision was made in the median line from an inch below the xiphoid cartilage to within an inch of the umbilicus. The disease was found to implicate the pyloric end of the stomach, the commencement of the duodenum, and mesenteric glands. The great omentum was pushed upward, and the upper end of the jejunum was drawn forward and stitched to the margins of the wound with a double row of silk sutures. The remaining portion of the wound was closed in the usual manner. The patient was nourished by rectal enemata and Slinger's nutrient suppositories. On the second day a small incision was made into the bowel through which an ounce each of cream and peptonized beef-tea was injected. The patient continued very restless and became weaker, and died of exhaustion sixty-six hours after the operation. The autopsy showed that the intestine had formed firm adhesions to the wound throughout, and that no inflammation had followed the operation. From the experience furnished by this case, he believes an incision through the left linea semilunaris would be preferable to the median incision. The sutures should be so placed that the part of the intestine presenting in the wound should be exactly opposite the mesentery. The opening in the bowel should be across the axis of the intestine, and only long enough to admit the nozzle of a syringe. The food should be administered through the fistula in only small quantities at a time, and gradually increased. When larger quantities are injected they should be given very slowly, so as to allow of this being mixed with the biliary, pancreatic, and intestinal secretions, and to prevent distention of the bowel. The food should be fluid, and acid in re-

action, the best articles being cream and peptonized milk, and beef-tea.

Golding Bird performed a similar operation for the same indications some two months later, without being aware of Gould's operation. The bowel was opened on the third day, when food was administered solely through the fistula. When the meal exceeded ten ounces it produced indigestion, in smaller quantities digestion and absorption appeared to be performed in a satisfactory manner. The patient improved considerably in health until the ninth day, when, through an error in feeding him, some food passed into the abdominal cavity, and he died in twelve hours. The reporter pointed out that by this operation duodenal digestion could be assured, and there was, for physical reasons, less chance of regurgitation than after gastrostomy, and that the procedure required, in its performance, less interference with other viscera than gastroenterostomy.

Interesting as these operations may be from a surgical and physiological standpoint, it is to be hoped that in the future their application will be limited to experiments on the lower animals.

I have alluded to the different forms of "ostomies" for malignant diseases to show how extensively the principles of abdominal surgery have been applied in laudable attempts to afford relief after the disease had passed beyond the reach of radical measures. As a matter of course, the results have been so unsatisfactory that future attempts in the same direction should be abandoned as incompatible with the true aim and advancement of abdominal surgery.

SPLENECTOMY.

Accumulated experience appears to have definitely settled the indications for this operation. As the result of a study of thirty cases of splenectomy, Credé has come to the following conclusions: 1. Adults tolerate removal of the spleen without permanent ill results. 2. Extirpation of the spleen produces a temporary disturbance in blood production. 3. The diminution in blood production is corrected by a vicarious action of other blood-producing organs, the thyroid and the medullary tissue in bone. 4. The physiological function of the spleen consists in effecting a transformation of the white into red blood-corpuscles.

During the past year a new case of splenectomy for leukæmia has been reported by Rydygier. The extirpated organ weighed six pounds. The patient, a woman thirty-one years of age, died on the following day of hemorrhage from the abdominal wound. The ligature on the main bloodvessels involved held perfectly, and Rydygier ascribed the hemorrhage to imperfect coagulation dependent upon the altered condition of the blood. This case brings the total number of deaths from this operation up to eighteen, of which sixteen were of hemorrhage and two from shock. Thus far, the only successful case of splenectomy for leukæmia is that performed by Franzolini.

As the pathology of splenic leukæmia remains to be explained and the mortality after extirpation has been so fearful, it would appear almost criminal to increase the sad statistics by adding new cases to the number of failures.

Splenectomy for visceral injury of the organ can show a splendid record, as of twenty cases collected by Zesas of partial or complete removal of a prolapsed spleen all recovered.

Credé extirpated the spleen successfully for cystic disease. The incision was made along the outer margin of the rectus muscle on the left side from the costal arch to the crista ilii. The pedicle was ligated and the stump dropped into the abdominal cavity. The patient, a female, became more and more anæmic for a number of weeks. Four weeks after the operation the thyroid gland became swollen and tender. The gland returned to its normal condition with the general improvement of the patient a few weeks later. Five years after the operation Credé reported his patient as remaining well. The temporary change in the blood had passed away and no abnormal tumefaction of any of the blood-producing organs could be found.

Billroth extirpated a sarcomatous spleen with four cm. of the tail of the pancreas, in a woman forty-three years of age, who had noticed the tumor for seven years. The growth had been rapid for the last two years. The tumor was firmly adherent to the omentum, small intestines, and pancreas; the latter organ was divided with Paquelin's cautery. The operation was not followed by any serious symptoms. During the third week a microscopical examination of the blood showed a slight increase of the white blood-corpuscles. The patient was feeling well four weeks after the operation. The numerous extirpations of the spleen made by Zesas on animals have demonstrated that it is not an essential organ, and that its physiological function in the production of blood corpuscles is adequately performed by vicarious organs, so that we can safely include splenectomy for visceral injuries and local diseases of the spleen among the well-established legitimate surgical procedures.

(*To be continued*)

ORIGINAL ARTICLES.

SUCCESSFUL NEPHRECTOMY ON A PATIENT OF TWENTY-THREE MONTHS.[1]

BY ROSWELL PARK, A.M., M.D.,
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R. B., born Oct. 4, 1883, of healthy parents, appeared at birth and during his earliest months perfectly well. During the ensuing winter his nurse noticed an enlargement on the right side of the child's abdomen. Later, the attention of the family attendant, Dr. M. B. Folwell, of Buffalo, was called to the fact. It steadily increased without corresponding impairment of health, and in spite of treatment. In June, 1885, Drs. E. M. Moore and Whitbeck, of Rochester, were consulted. The general conclusion arrived at was a lesion of the right kidney. At this time the urine was alkaline.

July 31, 1885, I first saw the child, it being then in apparent good health. The urine was alkaline from volatile alkali. It was stated that there was occasional dysuria. Under the microscope there were to be found only numerous crystals of triple phosphates. There was a history of steady enlargement of the growth. Dr. Folwell giving an anæsthetic, I first examined the external genitals; finding

[1] Read before the American Surgical Association, April 30, 1886.

adherent prepuce, I released the adhesions with a probe. I next carefully sounded the bladder, but could find no calculus. On examining the abdomen I found a firm, resistant tumor, about the size and shape of a fœtal head at term, occupying the right half of the abdominal cavity. It seemed unquestionably an enlarged kidney. Introducing an aspirator needle I drew off 15 c. c. of a brownish liquid which was odorless, this amount being all that would flow from the puncture.

This I submitted to my colleague, Prof. Witthaus, for examination, withholding all information—even as to sex of the patient—save that it came from an abdominal tumor. He kindly furnished me the following report: "I find that the liquid which you left me for examination does not contain uric acid, nor any very readily detectable amount of urea; on the other hand, it contains paralbumen in considerable quantity, and a peculiar modification of hæmatin which is stated by MacMunn to be peculiar to ovarian and parovarian cysts. From all characters of the liquid I should say that it came from a cyst which does not communicate with the pelvis of the kidney. All the microscopic and chemical characters of the liquid are those of the fluid of an ovarian cyst. There are, however, no cholesterine crystals, which are usually though not always present." Microscopically I also found cells which could not be distinguished from the Drysdale cells. In endeavoring to reconcile these chemical and clinical facts, I recalled a statement of Esmarch's to the effect that paralbumen has been found in the fluid of renal cysts; also the known fact that the Drysdale cell has been found in various intra-abdominal cysts. My diagnosis was fibro-cystic degeneration of the right kidney, probably of congenital origin.

Sept. 5. Drs. Folwell, Mann, and myself again anæsthetized and carefully explored. By aspiration we got again a small quantity of fluid similar to that first obtained. In the five weeks intervening since previous aspiration the tumor had notably enlarged and become less movable; while the general health of the little patient seemed deteriorating. The tumor was now so protuberant that he was actually wearing an abdominal suspensory, slung from the shoulders, in which he supported most of its weight.

Operation was proposed and consented to. The patient was removed to the Gates Laparotomy Pavilion in connection with the Buffalo General Hospital, where, indeed, he was the first patient admitted. He had thus the advantage of new and clean apartments.

Operation Sept. 15, 1885. Present: Drs. Rochester, Mann, Phelps, Hopkins, Folwell, who gave the anæsthetic, and the house physician and trained nurses. Chloroform (with amyl nitrite one per cent.) was given till the operation was half completed, when ether was substituted. No spray was used, but the strictest antiseptic details were observed in every other respect. Incision in right linea semilunaris, its middle opposite the umbilicus. On opening the peritoneum the first object to meet the eye was the appendix vermiformis, which lay stretched out over the surface of the tumor, almost at right angles to the line of incision, so far had it been crowded away from its proper locality. The tumor was, of course, retro-peritoneal, but occupied the entire right half of the abdomen; the cæcum and ascending colon were just to the left of the middle line. Exploration with the finger and sound revealed only the most trifling adhesions in the peritoneal cavity. A small trocar passed into the interior of the tumor failed to remove more than a spoonful of fluid. The abdominal incision was then extended till it was 13 centimetres long, and the peritoneum covering the growth incised. With but little difficulty this was separated all around it till the tumor shelled out from its serous covering, and lay loose save for its pedicle. Two large veins being quite conspicuous in the pedicle, they were first tied separately with catgut, then the whole was tightly seized with a pile clamp, tied in halves with stout silk. the tumor cut off and its base seared with the thermo-cautery. For the sake of safety, the whole was then once more enclosed in a catgut ligature, after which it was dropped.

Except that which was contained in the tumor, not more than 15 c. c. of blood was lost during the entire operation. After a careful toilet the abdomen was closed by numerous silk sutures. The entire procedure, including dressing, lasted forty-five minutes. Shock was comparatively slight.

Convalescence was marked by only one incident worth notice. The second evening his temperature began to rise, at 6 P. M. it was 103°, at 10 P. M. 104°, at 11 P. M. 104.7°, at 4 A. M. nearly 106°, in spite of half-hourly doses of tinct. aconite root. At 4 A. M., when his temperature was so nearly 106°, I ordered three minims of aconite tincture and five minims of tincture of digitalis hypodermatically. In *two hours* his temperature had *fallen more than six degrees.* This was a happy turning of a crisis which seriously menaced his life.

In due time chloroform was given for the removal of the stitches, and on the twelfth day he was removed to his home. At present writing, seven months later, he is the picture of health.

The tumor was, as I had supposed, a fibro-cystic degeneration of the kidney; the cystic element largely predominating. In the neighborhood of the renal pelvis a very thin portion of true kidney structure could still be distinguished. Immediately after removal and before section, it weighed very nearly four pounds, lacking only a fraction of an ounce. The function of this kidney seemed to have been so gradually transferred to the other that at no time after the operation was there the slightest disturbance in excretion or voidance of the urine.

I am aware that at the present date over two hundred and fifty nephrectomies are on record, yet among them all I can find account of but three patients who were of ages near that of mine. These are as follows:

Jessop, of Leeds, operated on a child aged two and one-quarter years, for encephaloid kidney. Lumbar incision. Patient recovered from operation and died nine months later from recidive. (*Lancet*, Am. ed., 1877, p. 480.)

Kocher, of Berne, reported a patient aged two and a half years, operated on for adeno-sarcoma.

Death on the second day. Abdominal incision. (*Deutsche Zeitschrift. f. Chir.*, ix.)

Czerny operated on an infant of eleven months for adenoma of left kidney. Death in sixty hours. Abdominal incision. (*Deutsche med. Wochenschrift*, 1881, 31.)

It would thus appear that mine was the youngest patient who has ever survived nephrectomy, he being twenty-three months old when operated on. The only other observation I have to make in connection with the case is that the abdominal incision was made not from choice, but from necessity, the tumor being altogether too large for extraction from so small an abdomen in any other way.

A CASE OF CLOSURE OF THE ORIFICE OF THE CYSTIC DUCT BY A GALL-STONE; ABSCESS OF THE GALL-BLADDER; CHOLECYSTOTOMY; RECOVERY.[1]

BY JOSEPH C. HUTCHISON, M.D.,
OF BROOKLYN, N. Y.

Mrs. S., a widow about forty years of age, was brought to me for examination and treatment by Dr. A. T. Bristow, of Brooklyn, in January, 1885, with the following history.

Twelve years ago she began to have paroxysms of severe pain in "the pit of her stomach, running through to the back," coming on suddenly, and lasting usually about twenty minutes, but occasionally continuing an hour. There was sometimes an interval of a year or more between the paroxysms; then again they would come every day and even several times a day. On one occasion the paroxysm came every day, and oftener, for more than a month. As a rule, she says, the paroxysms were more frequent when she was in ill health or "run down," or became wearied by any unusual exercise. They were not attended by nausea and vomiting or febrile disturbance, and were not followed by jaundice. She was at this time under the care of an irregular practitioner, who ascribed the pains to neuralgia of the stomach.

She came under Dr. A. T. Bristow's professional care in July, 1884, at which time he noticed a tumor about the size of his fist in the right side of the abdomen, below the level of the umbilicus. Pressure upon it produced a sense of oppression and shortness of breath, but no pain was developed. There was, most of the time, a dull ache in the region of the tumor, and to get relief she would involuntarily apply the hand, and move the tumor to one side or the other. She could move it laterally two inches. She had been free from the attacks of pain for more than two years. She was anæmic, and complained of exhaustion, but was able to attend to her household duties. The bowels moved regularly, and the feces were normal in color and consistency. There was no suspicion of hepatic disease; she had never had jaundice; chemical and microscopical examination of the urine showed that it was normal in all respects; had never had rigors or fever; was fairly well nourished; menstruation regular; heart and lungs healthy; and there was no suspicion of diathetic disease.

I examined the tumor in January, 1885. It extended from a line on a level with the umbilicus, and an inch to the left of it, across to the right lumbar region, and downward to within two inches of Poupart's ligament. It was irregularly rounded, fluctuated distinctly, was movable from side to side, and painless. There was no dulness between the tumor and the liver. The uterus was normal in size. The diagnosis was, cystic tumor of the ovary, and she was operated on May 18, 1885.

During the week preceding the operation the urine was examined several times, and was found to be in a normal condition; the bowels were moved by mild cathartics every day, and a few hours before the operation they were well moved by an enema; she had a warm bath every night; no food was allowed for five hours before the operation. The temperature of the room was kept at 80° during the operation. After the patient was placed upon the operating table and anæsthetized with ether, I again examined the tumor carefully. A question arose as to the correctness of the diagnosis, and I was unable to decide positively what its character was. I, therefore, made an exploratory incision through the linea alba beginning one inch below the umbilicus, and extending it downward two and a half inches. When the abdominal cavity was opened, the cyst, white in color, was brought to view, and a steel sound dipped in hot water, passed in and swept around the tumor, showed that there were no adhesions. With a large trocar one pint of laudable pus was withdrawn from the sac. Microscopic examination subsequently showed that there were no cholesterine crystals or other elements to indicate that the fluid came from the gall-bladder. There was no hemorrhage that required the use of a ligature.

The cyst was seized with forceps, and drawn up into the wound, to prevent its contents escaping into the abdominal cavity. In manipulating the sac I discovered that it contained a rounded, solid body, which, on being removed by the finger, after the opening made by the trocar had been enlarged, proved to be a gall-stone. On further exploration another was found, pointed on one side, the point fitting into the orifice of the cystic duct, completely occluding it. This condition explains the absence of jaundice, the absence of clay-colored stools and of bile pigment from the urine. An effort was made to explore the cystic duct with a probe, but its orifice could not be found. Two fingers were carried along the collapsed gall-bladder to the under surface of the liver, to ascertain, if possible, if the ducts were free from pus, calculi, or other obstructions, but none were found. The sac was well irrigated with warm water, and the edges of the opening into it were then stitched with five interrupted silk sutures, to the upper end of the wound in the abdominal walls, leaving the opening into the gall bladder quite free. The edges of the peritoneum were closed by a continuous catgut suture, and the remainder of the abdominal tissue by interrupted silk sutures, carbolized, carried down to the peritoneum, but not through it. The walls of the gall-bladder were one-

[1] Read before the New York Surgical Society, April 26, 1886.

fourth of an inch thick. A glass drainage tube was introduced into the gall-bladder, and the wound was dressed with oiled lint, sprinkled with iodoform, and covered with marine lint and a bandage. The gall-bladder was irrigated daily for four or five days through the drainage tube, with a half per cent. solution of carbolic acid.

Bile began to flow from the drainage tube on the second day after the operation, and it continued to flow from the fistulous opening for six weeks, when the fistula was entirely closed. Neither food nor drink was allowed the patient for the first twelve hours; after that she took half an ounce of milk and Vichy water every hour for twenty-four hours, and then the quantity of nourishment was gradually increased. She was entirely free from nausea during her convalescence. The catheter was used for several days. The temperature was taken every six hours for a few days. Once it reached 101°, but it was promptly reduced to 99° by the abdominal rubber coil. She was a good deal distressed with intestinal gas, and was not relieved by the introduction of a large rubber male catheter into the rectum; but ten minims of oil of turpentine, in capsules, every two hours gave prompt relief. The sutures were removed on the eighth day, and straps of adhesive plaster applied over the abdominal wound, and a bandage around the body. The bowels were moved toward the end of the first week, and on the twenty-first day she was allowed to get up. She suffered severely from urethral neuralgia for five weeks, but was relieved entirely by change of air.

The calculi are irregularly rounded, three-fourths of an inch in diameter, and weigh ninety-seven grains. Microscopic examination shows that they are composed largely of cholesterine.

Remarks.—An interesting feature of this case was the uncertainty of the diagnosis and the absence of symptoms calling attention to the gall-bladder. These had been confined to paroxysmal pains in the epigastric or hepatic regions for nearly three years. The pain which the patient had, in the early history of the case, referred to the pit of the stomach and extended to the back; although irregularly paroxysmal, it was unattended by nausea and vomiting, and was not followed by jaundice or clay-colored stools —symptoms which are almost pathognomonic of the passage of biliary calculi. During the period of painful paroxysms the feces were not examined for biliary calculi; had they been found it would have cleared up the diagnosis.

Aspiration would have thrown no light on this case. Indeed, it would have made the nature of the tumor still more uncertain, because none of the elements of bile would have been found in the fluid removed, which consisted of pure pus. Acupuncture might have aided in the diagnosis, but in so large a collection of pus it is not probable that the needle would have found the stone. Although the cholecystotomy was unpremeditated in this case, I would, in a similar operation, with the experience which this one has furnished, pursue the same plan. The incision in the linea alba is attended by less hemorrhage than the usual incision along the margin of the ribs, and experience has shown that an enlarged gall-bladder can be reached quite as readily by an incision as the other. Suturing the opening in the gall-bladder to the abdominal walls, and establishing a biliary fistula should, I think, be preferred to sewing it up and leaving it in the abdominal cavity: (1) because there would be less danger of the escape of bile into the peritoneal cavity, and (2) if the calculi cannot be found at once, they may be searched for subsequently, or be spontaneously discharged through the fistulous opening. The fistula usually heals in a few weeks. I saw the patient, January 25, 1886. She feels well, and is greatly improved in appearance. There is a slight ventral hernia in the course of the wound, but no dragging sensation from the adhesions of the gall-bladder to the abdominal wall. This case is another illustration of the difficulty in always positively diagnosticating abdominal tumors, and of the importance of being prepared, before operating, for unexpected conditions.

MEDICAL PROGRESS.

The Disinfection of the Hands.—Kümmel, of Hamburg, has performed an elaborate series of experiments with a view of ascertaining the best method of rendering the hands of the operator absolutely aseptic. He finds that this result is much less readily obtained, if the hands have previously been employed in the removal of bandages or in post-mortem sections. Under these circumstances the application of corrosive sublimate (1 : 1000) as recommended by Förster was found to be inefficient. The conditions which Kümmel finds necessary for the disinfection of the hands are:

Five minutes active and thorough washing with soap and a brush in water as hot as can be borne. This is followed by a thorough brushing of the hands with freshly prepared, officinal chlorine water, or with a five per cent. solution of carbolic acid, two minutes being given to this part of the process in either case. In practice, the forearm is also washed, and the need of prophylactic precautions, as to change of clothing, etc., are evident.—*Centralbl. f. Chirurgie*, April 24, 1886.

Cocaine Anæsthesia in Parturition. — At the meeting of the Association of German Physicians in Prague on April 9, 1886, Fischel presented the record of five cases in which local applications of cocaine were used to diminish the pains of labor. He quoted the brilliant results obtained by Doléris, in whose observations the drug was applied to the vaginal mucosa and the external genitals in aqueous solution, or in the form of a salve, the strength in either case being four per cent. The amount used was from forty to sixty drops of the solution and forty-five to sixty grains of the salve. In this manner Doléris induced practically painless delivery in thirteen out of fifteen primiparæ.

Fischel's results were less striking. Employing, as a rule, weaker cocaine solutions, he records one case of absolutely painless delivery, two in which the pain was greatly diminished by the application, and two in which the results were negative.

These observations, apart from the practical interest, tend to show that the seat of the labor "pains" is not in the uterus, but in the dilating cervix and the vagina. —*Wiener med. Presse*, April 25, 1886.

Senile Changes in the Cerebral Cortex.—Kostjuran has examined a number of brains of old people in Professor Obersteiner's laboratory, in order to establish the histological changes to which the various tissue elements of both simple and senile atrophy may be referred.

He arrived at the following conclusions:

1. The great part of the nerve cells in old age belong to a class of a more or less well-marked pigmented fatty degeneration, and show sometimes the formation of vacuoles.

2. The medullated nerve fibres of the cerebral cortex in part atrophy and become fewer in number.

3. The small bloodvessels are affected by atheromatous degeneration, viz., an almost universal spindle-shaped thickening of the connective tissue of their walls, which may result in the entire closing of their lumen. The quantity of the normal amount of pigment present in the adventitia of the arteries seems slightly increased.

4. In place of the atrophied cells and nerve fibres, there is a slight thickening of the connective tissue.

5. At the periphery of the convolutions of the brain there is always a larger or smaller quantity of corpora amylacea, which may form a continuous enveloping layer round the cerebral cortex.

These several degenerative changes are, as regards their intensity, not so dependent on the age of the individual, but rather correspond to the decrease of weight of the brain; in heavy, though at the same time very old brains, they may be nearly absent, whilst in much younger but particularly light brains, they are very marked. This is mostly the case when there are degeneration and decrease of the nerve fibres.

Further, the above described changes of the different elements forming the cerebral cortex will suffice to explain all those phenomena which characterize senility, so far as the activity of the brain is concerned.

One must regard them as the normal result of the brain of old age, and when other pathological appearances are present in such brains they must be referred to other causes than old age.—*Brain*, April, 1886.

Therapeutics of Epilepsy.—In an article by Dr. C. L. Dana, in the *New York Medical Journal* of April 24, 1886, there is given the following *résumé* of some favorite special forms of treatment:

The *zinc treatment* of Herpin was as follows: Give gr. ij½ of zinc oxide ter in die, increase the dose by gr. ¾ every week until gr. xj are taken t. i.d. Keep this up for at least three months. It appears that Herpin subsequently used to add or alternate with ammonio-sulphate of copper or selenium.

The *belladonna treatment* of Trousseau;

℞.—Ext. belladon. fol.,
Pulv. belladon. fol. . . . aā gr. ½.—M.
Sig.—One A. M. and P. M. for one month.

Then increase the dose by one pill daily each month until twenty pills are taken night and morning. The treatment must be continued for a year.

Gowers's method consists in giving the bromides in single doses at intervals of from two to five days, these single doses being gradually increased. Thus the patient takes ʒj on the first day, ʒjss on the third day, ʒij on the sixth day, ʒiij on the ninth day, ʒiv on the fourteenth day, and so on until the maximum dose of about ʒj is reached, when the drug is decreased in the same way.

I have found this a very good method if during the intervals tonics and adjuvant measures are employed.

The *method of Meynert*, in many cases, is to give fifteen grains of bromide of potassium three times daily, and increase the dose by fifteen grains every time a fit occurs until they are suppressed.

A *mixed treatment*, like the following, is recommended by Ball and Handfield Jones:

1. ℞.—Ammon. bromid.,
Sodii bromid. . . . āā ʒijss.
Infus. valerianæ . . . ʒx.—M.
Sig.—ʒij daily, increasing until ʒijss of the bromides are taken daily.

2. At the same time take a pill:
℞.—Ext. belladonnæ . . . gr. ½
Zinci oxidi . . . . gr. iij.—M.
Sig.—One, morning and night.

3. A drastic purge weekly.

An *acid mixture* for epileptics, which I have found efficient in two cases which resisted other forms of medicine was:

℞.—Acid. hydrobromic. dil., 10 per cent. ʒj.
Atropinæ hydrobromat. . . gr. $\frac{1}{200}$.
Zinci citrat. . . . . gr. iv.—M.
Sig.—Take this t. i. d., and gradually double the dose.

A mixture alleged to be very efficient is:

℞.—Potass. bromid. . . . . gr. xv.
Sodii arsenit. . . . . gr. $\frac{1}{120}$.
Picrotoxin . . . . . gr. $\frac{1}{180}$.—M.
Gradually increase.

A New Method of Testing Tactile Sensibility in Unilateral Brain Lesion.—H. Oppenheim describes his method as follows:

In unilateral brain lesion a partial hemianæsthesia is often present, which may be overlooked. If the slightly anæsthetic side is touched, the patient says he feels the touch, and is sometimes unable or unwilling to admit a difference in the sensation between this and the unaffected side. Oppenheim finds that in these cases, if the patient's eyes are covered, and the symmetrical spots on the body or limbs are touched at once on both sides, he will perceive the touch on both sides if no anæsthesia is present; but on the unaffected side only, if the other is slightly anæsthetic. The recorder can confirm this statement as tested on two cases.—*Journal of Nervous and Mental Disease*, March, 1886.

Treatment of Ivy Poisoning.—Dr. Augustine Brown calls attention to a specific remedy for ivy poisoning which he described eight years ago in the *Medical Record*. This remedy is bromine, which Dr. Brown has employed with unvarying success in seventy-five cases, using the following formula:

℞.—Brominii . . . . . gtt. x–xx.
Ol. olivæ seu
Ol. amygdalæ dulc. . . f ʒj.—M.
Sig.—Apply freely to affected surface four times daily. Wash with warm water and castile soap twice daily.—*Northwestern Lancet*, May 1, 1886.

THE MEDICAL NEWS.

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SATURDAY, MAY 22, 1886.

THE THERAPEUTIC MITIGATION OF ANTHRAX.

IN the appendix to the April number of the *Journal of Physiology*, there is published a most interesting precursory note by DR. THEODORE CASH, on a method of antiseptic medication, by which not only is the severity of anthrax poison greatly diminished, but also immunity from subsequent attacks is conferred by the modified and relatively mild disease.

The fact that considerable quantities of perchloride of mercury are retained in the organism for some days after the administration of the drug has ceased, and that as a germicide it is still operative even in very great dilution, led Dr. Cash to the idea that a modified form of certain diseases, depending upon the presence and multiplication of pathogenic microorganisms, might be produced by administering a known quantity of the drug before inoculating with the special virus.

The experiments described have thus far been limited to anthrax inoculations, but the results are so striking as to justify a hope that a much more extended application of the method will be found. In one animal, a rabbit weighing about 1800 grm., the total dose of 0.015 grm. corrosive sublimate was administered hypodermically in divided and highly diluted doses in the course, of seven days. On the eighth day inoculation with unmitigated anthrax virus was made. The control animal inoculated at the same time died within forty-four hours, but the prepared rabbit suffered only a passing disorder from which it soon recovered. In four weeks and six weeks respectively the inoculation was repeated, the control animal in each case dying within forty-eight hours; but on neither occasion did the prepared rabbit show any further symptom. It is safe to infer from this and other experiments having a like result, that a modified attack of anthrax had occurred which rendered the animal, for this length of time at least, immune from the virus. Short of the protecting effect, a smaller dose (roughly speaking, 0.005 grm. per kilo. body weight) was found to cause in the fatal issue a delay which bore a relationship to the variations (within certain limits) of the dose. When delay resulted, the number of bacilli found in the blood after death was extremely small; but this virus-containing blood showed itself to be unmitigated and unmodified with regard to its action upon another animal.

More exact details as to the relation which should exist between the dose and the weight of the animal, and in regard to the length of time to which the treatment should be extended, are promised by Dr. Cash. It is to be hoped that a method promising so much as this, and one which apparently offers direct proof of the possibility of poisoning the germs of disease without poisoning their host, will receive on this side of the Atlantic the close investigation which it merits.

HAY FEVER.

DR. OSCAR BESCHORNER, of Dresden, in a late number of the *Internationales Centralblatt für Laryngologie, etc.*, gives a most complete historic *résumé* of hay fever literature, with 145 references, extending from Botallus in 1565 to the present date. After alluding to the opinion, until recently prevalent in Germany, that the disease was either unimportant or very rare, and stating that, up to a little more than a decade, some of the most experienced German physicians had never encountered a case, he cautions against mistaking every instance of spring snuffles for hay fever, or spring snuffles accompanied by dyspnœa for hay asthma. The recent augmentation of hay fever patients in Germany may be attributed, he thinks, either to increasing emigration from country to city, and consequent prolonged residence in contracted apartments, in accordance with the theory of Blackley, or to the recent popularization of medical topics directing the attention of the public to the disease, and to the value of galvanocauterization of the nose in the treatment of numerous constitutional maladies, especially those of the respiratory organs, which naturally occupy the first rank.

Of all the names—some fifty—proposed for the malady, Beschorner prefers hay fever, the oldest, the most familiar, and the most popular. He defines it as a catarrhal inflammation of the conjunctiva and the mucous membrane of the nose and of the upper air-passages, excited by the pollen of plants and particularly of grasses; occurring only during the flowering season, in individual, but regularly re-

curring, annual accesses; attended with slight febrile movements and disturbances of the general comfort; sometimes associated with actually threatening manifestations, asthma especially, but always terminating favorably.

After running chronologically through the different etiological opinions of observers, he concludes that the malady appears to require a certain and perhaps inherited neurotic constitution, not general neurasthenia in the ordinary sense of the word, but an unusual irritability in certain nerve areas, particularly those of the upper respiratory organs, and especially that of the nose; that is to say, principally in the domain of the trifacial nerve. This irritability favors a slight distention of the blood-vessels supplying the same areas, and is excited or favored either by inherited or acquired pathological changes in the nasal passages, their epithelial layer, their mucous membrane, capillaries, and nerve endings.

This predisposition existing, the pollen of the flowering grasses is, by far, the most frequent exciting cause, annually reproducing attacks as the same seasons recur. The structure of the pollens is discussed, with their behavior under moisture, to show how the local distress can be accounted for by mechanical and chemical irritation, and the constitutional disturbance by the hypothesis of the penetration of the minute particles into the blood-current.

The two forms of hay fever, catarrhal and catarrho-asthmatic, may occur together or alone; either one may follow the other; or one or the other affect the same individual in different years.

The symptoms of the malady are well described in detail. The principal methods of treatment are passed in review, and decided preference is expressed for radical destruction of the supersensitive tissues by the electric cautery, due caution being given to operate with great circumspection and at sufficient intervals, so as to avoid such accidents as œdematous swelling of the face, erysipelatous inflammation of the nose and cheeks, rheumatoid (pyæmic?) swellings of the extremities, inflammation of subcutaneous connective tissue in parts near the nose, extensive erythema, destruction of the sense of smell, inflammation of the middle ear, neuralgia, febrile disturbance, and abortion—all of which have followed galvanocaustic procedures. Rest after operations, occlusion of the nose with tampons of cotton, the insufflation of mild alkaline lotions, and restricted diet are indicated as necessary adjuncts in the treatment.

While the ordinary hay fever of early summer occurs in all countries, the autumnal variety is supposed, as stated by Wyman, to be peculiar to certain regions of the United States, and to be due to the irritation excited by the pollen of the ragweed, Roman wormwood or ambrosia artemisiæfolia, which has been until lately an exclusive product of this country, flowering in August and September. PROF. HACK, of Freiburg, however, in the *Deutsche med. Woch.*, No. 9, 1886, narrates a case of periodic autumnal catarrh of twenty-two years recurrence, in a German who has never lived out of Germany; and in a foot-note he remarks that seeds of the ambrosia artemisiæfolia have been brought of late years into certain portions of southern Germany along with American clover seed, a fact which he intimates does not, of course, account for the prolonged period during which his patient had been subject to the malady. Rhinoscopic examination of his patient revealed bilateral venous turgescence and hyperæsthesia of the entire mucous surface of the middle and lower turbinates. He, therefore, regards this condition as a chief factor in the development of the malady, in accordance with the opinion most prevalent among American observers.

It is interesting to note that during two seasons, the autumn of 1878, when the patient happened to be in Switzerland, and that of 1884, which he passed in Blankenese, his annual attacks were suspended; an immunity similar to that secured at some of our American mountain resorts. Hack attributes the ordinary hay fever of spring and summer to a supersensitiveness of the nerve endings, both sensory and olfactory, in the nasal mucous membrane, which leads to turgescence, such as has been described above; the character of the exciting irritant, whether pollen or anything else, being a consideration of secondary importance. A nervous diathesis and general abnormal reflex sensibility are held to account, in many instances, for the ready turgescence of the turbinates. Topical treatment of the supersensitive areas—galvanocaustic, of course—is, in his opinion, the best treatment for the cure of the local affection and of the reflex manifestations it occasions.

STATUS OF THE LAW REGULATING HOUSE DRAINAGE IN PHILADELPHIA.

IT appears as though Philadelphia is to be deprived of the full benefits of the law regulating house drainage and plumbing in that city, through the dilatory action, or rather inaction, of City Councils. The law which was passed in June, 1885, authorizes and directs the Board of Health to adopt and promulgate suitable rules and regulations for the construction of house drainage, and to provide for the registration of master plumbers, which provisions have been carried into effect. It also directs them to establish a system of inspection and supervision over all house drainage, and to appoint such inspectors as in their judgment may be necessary, and at such compensation as may be approved by City Councils. More than six months have elapsed since the number

and the compensation of the inspectors required, and the appropriation necessary for executing the Act have been laid before Councils; and yet, notwithstanding the fact that the City Solicitor has construed the provision of the law as mandatory, no effort has been made to provide the necessary funds. The law has thus been stultified, and its beneficent aims set at naught, through the prejudice, ignorance, or indifference to the public welfare of the city's legislators.

The case is not a hopeless one, for the authority of the courts can be invoked to compel a prompt compliance with the mandatory statutes of the supreme legislative body of the Commonwealth. But it is unfair and unbecoming on the part of the City Councils to provoke a conflict with a subordinate department of the city government, inasmuch as they hold in part the appointing power, and can otherwise embarrass the action of the Board of Health. These considerations, however, should not be permitted to obstruct the performance of a duty, and in due time the Board of Health should, by the power of a judicial fiat if necessary, compel the passage of an appropriation adequate for the proper execution of the law.

THE PENNSYLVANIA STATE SANITARY CONVENTION.

The State Sanitary Convention which was held in Philadelphia the past week, whilst it has not added materially to our stock of knowledge, has accomplished a valuable purpose in diffusing amongst the community the knowledge that has already been gained of the principles of sanitary science and preventive medicine. The successful application of these principles depends, to a great extent, upon their willing acceptance by the people. Ignorance and prejudice are the stubborn barriers to the popular appreciation of the value of preventive medicine. These obstacles are to be overcome by feeding the minds of the people with well-ascertained facts and the principles drawn from them, so that a willing effort will be made to carry into effect the beneficent and health-giving procedures that have been provided through the earnest efforts of men of science.

It is to be regretted that the meetings of the convention were not more fully attended, but the interest taken in the proceedings should not be gauged alone by the numbers in attendance, for the people of a busy community will not always spare the time required for participation in an entertainment of this character, and prefer to read at their leisure an account of what has taken place. The full reports of the transactions, which appeared in the daily papers, are perhaps a more trustworthy index of the popular demand and appreciation.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Thirty-seventh Annual Meeting, held at St. Louis, May 4, 5, 6, and 7, 1886.

(Specially reported for The Medical News.)

Section on Obstetrics and Diseases of Women.

Tuesday, May 4.—First Day.

Dr. W. H. Wathen, of Louisville, read a paper on

TREATMENT OF THE MEMBRANES IN ABORTION AND IN LABOR.

At the meeting of the British Medical Association, at Cardiff, in 1885, this subject was discussed by the best physicians of the United Kingdom, who failed to agree in many particulars as to the best treatment. Felsenreich, in the number of the *Wiener Klinik* for January, 1886, and Pajot, in the number of the *Archives de Tocologie* for February, 1886, wrote exhaustive papers on the subject. The former advocated the expectant mode of treatment, the latter opposed it. In America, the same difference of opinion and practice exists. Opinions differ as to the mode of separation of the placenta and membranes. It is urged that separation results from contraction or reduction of the placental area, causing a retro-placental clot which materially aids the process. Relative inequality in the contractile or retractile powers of the uterus and the fœtal envelopes may cause separation through the trabecular layer of the decidua (Kundrat, Englemann, Freeland Barbour).

The formation of the placenta begins about the second month, and it increases in size until the end of pregnancy, but in the latter months, the union between the placenta and uterus becomes less intimate. The amnion and chorion are not in direct contact until between the end of the third and the end of the fifth month, —a fact explanatory of the phenomenon of expulsion of the fœtus in an unbroken amniotic sac, with retention of the chorion and decidua within the *cavum uteri*.

In abortions after the eighth week, in premature labor, and in labor at term, the membranes should be removed, whether separated or adherent, when they are not expelled within twenty to thirty minutes, and they should be removed sooner if there is apprehension of hemorrhage, retention of the placenta, or irregular contractions of the uterus. If in abortion the woman shows symptoms of exhaustion or syncope, and bleeding continues, the shock in removing the membranes is not greater than that of tamponing the vagina.

In the statistics of Dr. Weir, of Copenhagen, expectation was followed by the retention of the decidual membranes in 1.78 per cent.; expression, 2.3 per cent. Post-partum hemorrhage occurred under the expectant plan of treatment in 5.78 per cent. of cases; expression, 2.3 per cent. Under the expectant plan of treatment, manual removal of the placenta was necessary in 1.33 per cent. of cases, and with expression 0.64 per cent. Secondary hemorrhage followed the expectant plan in 0.77 per cent. of cases; expression, 0.32 per cent.

A lady in Louisville died recently from septicæmia with pelvic peritonitis and cellulitis, caused by a decomposed placenta which had been retained over two months in an abortion at the end of the third month.

In abortions before the end of the second month, if hemorrhage ceases, no effort should be made to remove the membranes unless they protrude into the vagina and can be taken away without introducing the fingers or instruments into the uterus.

For dilatation of the cervix, the finger is the best instrument, although it may be necessary occasionally to use a metallic dilator.

Credé's method should be employed in effecting expulsion of the placenta in labor at term. Ergot should never be given until the uterine cavity is evacuated.

Dr. Fuller, of Maine, after an experience of thirty-eight years, was in favor of prompt placental delivery. He is usually able to express the placenta in cases of labor at term within five minutes after the expulsion of the child. In abortions, the time required to effect the evacuation of the uterine contents is longer.

Dr. Willis P. King, of Sedalia, Missouri, had seen 719 cases of labor at term, and twice that number of abortions. In labor at term he employed Credé's method of expression. In abortions, when hemorrhage was severe, he practised rapid dilatation of the cervix with the finger or steel dilators. The uterine cavity was then washed out with a hot (115°–120°) solution of corrosive sublimate (1 : 4000). For tampons, he uses borated absorbent cotton.

In normal labor, at term, with no lacerations of the genital tract, intrauterine irrigation was contraindicated. As the result of (1) early removal of the fœtal envelopes, and (2) the prevention of a culture field for germs, he had seen no cases of septic infection in his practice for over two years.

Dr. C. R. Reed, of Middleport, Ohio, believed in prompt delivery of the placenta in labor at term. In nineteen cases out of twenty, he was able to deliver the placenta by a combination of Credé's methods and traction on the cord, within five minutes after the expulsion of the child.

Dr. W. W. Potter, of Buffalo, said that the terms uterine massage and Credé's method had been employed by certain debators as synonyms. Suprapubic pressure was not Credé's method. Credé, in 1853, said that four fingers must be introduced behind the *corpus uteri*, the thumb over the anterior wall, and the placenta must be expressed just as the stone of a cherry is pinched out. He did not approve of traction on the cord, although when the traction is slight no harm usually results. He called attention to the numerous sequelæ of abortion, and the importance of effecting early evacuation of the *cavum uteri*.

Dr. John Morris, of Baltimore, advised the early removal of the placenta in labor at term. He never allowed the placenta to remain longer han wenty minutes after the birth of the child. He distinguished between abortions, the result of natural processes, and those induced by medicines and instruments. In induced abortions, it is necessary to practise rigid antisepsis, and the prognosis is less favorable. In so-called "natural" abortion, he was inclined to watch and wait for a spontaneous evacuation of the uterine contents. Antiseptics are seldom required under these conditions. Certainly, intrauterine irrigation is not indicated. He never exhibited ergot before the uterine cavity was emptied except in cases of "bleeders."

Dr. Hunter, of Minneapolis, desired to enter a protest against the indiscriminate use of intrauterine irrigation. He had recently observed the fatal termination of a case in which the uterine cavity had been irrigated. He now swabs out the *cavum uteri*—when indicated—with a mixture of iodoform, carbolic acid, and glycerine. He had seen disastrous results follow vaginal irrigation with a corrosive sublimate solution, 1 : 2000. It was necessary to employ the bichloride of mercury with extreme caution—if at all.

Dr. W. W. Potter, of Buffalo, read a paper entitled

SOME OBSERVATIONS ON THE UTERINE SOUND; WITH ESPECIAL REFERENCE TO ITS PLACE IN GYNECOLOGICAL THERAPEUTICS.

After a brief sketch of the "rise and progress" of the uterine sound, he offered certain criticisms upon its indiscriminate and careless employment. The sound should be employed only as a last resort in junctures of extreme doubt. The supersensitive endometrium may be irritated, and active inflammation (metritis, paro- and perimetrititis, salpingitis, ovaritis, etc.) may result. Pregnancy may be interrupted. As the remote result of the inflammation excited by the sound, the various hystero-neuroses are produced.

Tactile sensibility admits of almost infinite development. The sound is nothing less nor more than a prolonged finger, and should, therefore, be dispensed with wherever the finger itself can be made available, provided it furnishes with accuracy the information sought. It certainly should never be used with any force whatever, its own weight being sufficient to carry it to any place where it can be made of practical service. The *os uteri* should always be patulous to even a marked degree whenever it is employed, and the endometrium should be free from any undue tenderness when touched by the sound. The delicate virgin silver probe of Sims is better and safer than Simpson's sound. This should not be passed during a first interview, if it is possible to avoid it, nor until one has become quite familiar with the topography, and all the peculiarities of the sexual tract of his patient; nor, further, until it is first wrapped with a film of absorbent cotton, to serve as a cushion to the metal. It should never be used as a repositor. Manipulation in the genupectoral position will suffice to effect reduction of dislocation, when such rectification of position is indicated.

Dr. Geo. F. Hulbert, of St. Louis, thought it impossible to acquire adequate knowledge of pathological conditions of the uterus without the use of the sound.

Dr. Engelmann, of St. Louis, had given up the use of the sound, and, to a degree, that of the speculum.

Dr. Gerhung, of St. Louis, thought that the sound should never be used as a uterine repositor when adhesions exist. When the uterus is perfectly movable, and absolutely no adhesions are present, the uterus may be replaced by a repositor. He occasionally employed the sound for other purposes. He thought the film of cotton placed around the sound a dangerous precaution; fluids may be forced through the tubes on account of the plugging of the cervical canal. The *tactus eruditus* must be acquired before the sound can be dispensed with. In the diagnosis of cervical lacerations, and certain pathological conditions, he gained more information by means of his index finger than by the use of the speculum.

DR. A. C. MILLER, of Ohio, opposed the views advocated by Dr. Potter. Digital examination was the cause of cellulitis, as well as the sound. In the hands of an expert, the sound is a perfectly safe instrument.

DR. KING, of Missouri, thought the inflammatory disturbances, ascribed to the sound, were frequently of septic origin. Germs from the vagina were introduced along with the instrument. Cleanse the vagina thoroughly before introducing the sound. Latent vaginal gonorrhœa is a frequent condition, and the gonococci cause the mischief attributed to the sound.

DR. H. O. MARCY, of Boston, read a paper entitled

THE PERINEUM AND ITS RESTORATION.

When the rupture is incomplete it does not involve the sphincter; with the structures rendered tense by two fingers in the rectum the tissues are very carefully separated subcutaneously, lifting up to a considerable depth the vaginal mucous membrane with a layer of substructures, as widely as may be necessary to restore the parts to their normal condition. This is carefully determined upon before the operation. The anterior flap cut without opening into the vagina is then lifted and the deeper structures are approximated by pins introduced parallel with the rectum and so fixed in their peculiar construction that they look not unlike a safety pin in two parts and thus hold the tissues enclosed without strain. Two, three, or more are introduced in this manner and the external wound now reversed, until its edges are antero-posterior instead of transverse, and are carefully approximated by the over-and-over tendon suture. The pins are removed, as may be judged requisite, in from six to ten days.

In complete rupture the operation varies only in the lateral dissection of the parts, which are then closed by three lines of continuous tendon suture, commencing upon the rectal side, where they are a little deeper and then on the vaginal side last of all, closing as in the operation for the restoration of the incomplete rupture, the perineal or external side of the triangle. These reversed surfaces are then held in opposition by the parallel pins, and thus adjusted without strain, the perineum is restored to its normal depth and strength. The author has now amply demonstrated by an experience of some years and many operations the value of his methods, and he claims not only to render a far better result but to simplify greatly an operation often demanded, and which must come within the range of wise procedure by the average practitioner.

Dr. Marcy advises the emptying of the rectum as early as the second or third day after the operation, and never allows an accumulation of feces to press upon and interfere with repair.

DR. GEHRUNG, of St. Louis, praised the ingenuity of Dr. Marcy's modified pin suture and described his own method of perineal repair. He never employed the circular silver suture.

DR. S. C. GORDON, of Maine, for the last one and one-half years used the continuous catgut suture except in cases of lacerations extending into the anus.

DR. WATHEN, of Kentucky, thought Dr. Gehrung's lead plates and sutures would cause too much local disturbance and pain. The same objections held with reference to Dr. Marcy's suture. He thought Dr. Marcy's operation was better than Dr. Emmet's. The latter is difficult to understand.

DR. H. O. MARCY, of Boston, said his "modified pin" gives less pain than the ordinary silver wire suture. He exhibited ligatures prepared from kangaroo's tail, and treated with chromic acid after Lister's method. He had introduced this ligature. He had tried ligatures made from the tendon of the tail of the South Carolina fox squirrel with success, and was thus led to send to Australia for the tendon of the kangaroo's tail. These ligatures were kept in bottles two feet long.

DR. E. W. CUSHING, of Boston, read a paper on

THE PATHOLOGY OF EROSIONS (SO-CALLED) OF THE OS UTERI.

The pathological propositions advanced were as follows: That the customary divisions of erosions is erroneous. That the views advanced by Ruge and Veit are essentially correct. The pathology of ectropion was also considered, and exception taken to the views of Emmet as to the relative importance of lacerations in causing the eversion.

Dr. Cushing stated that the glandular formation in the mucous membrane is the immediate cause both of the symptoms and of the eversion, that the condition spreads far over the cervical tissues which should be covered by flat epithelium. He described the manner in which these new-formed glandular cavities become cancerous and invade the surrounding parts, and advised in general that erosions, when not yielding readily to medical local treatment, be freely curetted or if inveterate and recurrent be thoroughly excised.

DR. A. C. MILLER, of Ohio, thought the pathological conditions of the cervix described by Dr. Cushing, were referable to the bloodvessels of the part. The veins are frequently varicose. He had effected cures by putting a small rubber band around the neck, near the vaginal insertion. These pathological states of the cervix are examples of malnutrition.

WEDNESDAY, MAY 5.—SECOND DAY.

DR. FRANKLIN H. MARTIN, of Chicago, read a paper entitled,

ELECTROLYSIS IN GYNECOLOGY.

He had used electrolysis with beneficial results in the following conditions: Chronic cellulitis and peritonitis, chronic ovaritis and salpingitis, chronic subinvolution of the uterus, chronic hyperplasia of the uterus, uterine stenosis, laceration of the cervix (removing cicatricial tissue), ovarian cysts, periuterine hæmatocele, uterine fibroids. It is the chemical effect of the galvanic current that he sought, therefore he terms the treatment electrolysis. He seeks to remove pathological tissue by breaking it up into its constituent elements, when its absorption is accomplished or facilitated. There is a tendency to electrolytic action in all tissues through which a galvanic current of high tension is passed, but it is not so active in normal as in pathological tissues. Normal tissue has a tendency to repair itself immediately, and replace that which might have been absorbed by the effect of the electrical current. Pathological tissue, as a rule, has not this power.

The current that he uses is one of small quantity and high tension. To get this current, he used a small Bunsen element of zinc and carbon. As a fluid, he uses a weak

solution of sulphuric acid and bichromate of potassium. In applying a galvanic current for the purpose of permitting the absorption of an inflammatory exudate, or a pathological growth of any kind, he seeks to pass the current through the centre of the largest mass of such tissue.

DR. ELY VAN DE WARKER, of Syracuse, acting upon the suggestions of Dr. Freeman, of Brooklyn, had used electrolysis in the treatment of a case of rapidly growing uterine fibroid. The woman was young, married for three years. The tumor extended upward to the umbilicus. No menorrhagia had been observed. The patient was anæsthetized, two needles were inserted into the tumor, and 10, 15, and 20 zinc, carbon cells were employed. The treatment, notwithstanding the narcosis, was painful. A high temperature was noted about three days subsequently, which proved to be caused by the formation of an abscess. This abscess subsequently ruptured.

The patient returned at the expiration of three months, and electrolysis with twenty cells, through one-half hour, was practised. Three months ago, no appreciable diminution in the size of the tumor was noticed. A slight reduction in size followed the first treatment, possibly due to the abscess. Negative results were obtained in two other cases of uterine myomata.

In his hands, this method of treatment had been painful, and not devoid of danger.

DR. ROBERT NEWMAN, of Brooklyn, said that weak currents should be employed to produce resorption. The use of from twenty to eighty cells is criminal. Failure in the treatment with electrolysis is due to the facts (1) that medical men expect too much, and (2) that they do not know what they are doing. Electrolysis has a wide field of usefulness in gynecology. Its function in extrauterine pregnancy is established. He expects much from the procedure in the treatment of fibroids. He would insert one needle into the tumor, and place the other pole on the abdomen. Then two, three, four, five, but never more than six cells should be employed. Semmel, of Mexico, and Mundé, of New York, had practised with advantage this method of treatment.

In carcinoma and sarcoma, favorable and unfavorable results had been obtained. The growth can be resolved into its chemical constituents, and when the cancer or sarcoma germs, whatever they are, have not gone beyond the limits of the neoplasms, the diseases can be cured. When the germs have invaded the system, of course, the resolution of the local disorders has little influence on the progress of the diseases. In carcinoma of the mammary gland, he had, in some cases, cured the disease.

DR. HULBERT, of St. Louis, believed in the potency of electrolysis as a method of treatment. Dr. Van de Warker had used electrolysis without a galvanometer. As well give strychnia without measuring the dose, as use electricity without a galvanometer. He had recently used electrolysis in the treatment of a case of pelvic abscess. After evacuation of the pus, he washed out the cavity with a boric acid solution, and treated the walls by electrolysis. Complete resolution was effected.

DR. T. A. REAMY, of Cincinnati, asked how much evacuation of the pus cavity and how much electrolysis had to do with the cure of Dr. Hulbert's case?

DR. HULBERT thought evacuation of pus was a factor, but not the sole nor the most important factor, in the resolution of the thick abscess walls.

DR. GEORGE J. ENGLEMANN, of St. Louis, was surprised that Dr. Van de Warker, Dr. Newman, and others used electrolysis without a galvanometer. He heartily endorsed the remarks of Dr. Hulbert. The employment of weak currents, he thought was an error.

Dr. Martin had cured a case of uterine fibroid after forty-five *séances* of forty minutes duration. Dr. Englemann cured such cases after five *séances* of five minutes duration, without anæsthesia. He followed the precepts of Apostoli, of Paris. The negative pole was introduced within the tumor to the extent of six or seven inches, and then a current of from forty to one hundred *milleampères* was employed for five minutes. A soft sheet of pliable metal, covered with a sort of punk, was placed over the abdomen and connected with the positive pole. He narrated the history of a dispensary case, in which a fibroid tumor extended upward above the navel. After three *séances* of five minutes duration, scattered over a period of three weeks, the tumor was found to be one inch below the umbilicus.

DR. S. M. JOHNSON, of Kansas City, was then

NOMINATED FOR CHAIRMAN

for next year.

DR. GUSTAV ZENKE, of Cincinnati, then read a paper entitled

PUERPERAL FEVER, AND THE EARLY EMPLOYMENT OF ANTISEPTIC VAGINAL INJECTIONS.

He considered the value and necessity of antiseptic, or simply warm water injections, as recommended for prophylactic purposes in normal cases of labor. Washing out the vagina immediately after normal labor, he thought meddlesome midwifery; it did no benefit, prevented nothing, and might do harm. In prolonged or instrumental labor, delivery, if the hand has been introduced, or if injuries have been sustained, vaginal injections are always, uterine injections rarely, indicated.

DR. HULBERT, of St. Louis, said that when he first took charge of the Female Hospital, Arsenal Street and Manchester Road, there was an epidemic of puerperal fever with a mortality of twenty-five per cent. Fifty per cent. of all the cases suffered from septicæmia. During the last year, with antiseptic vaginal douches in all cases, and intrauterine irrigation when specially indicated, the mortality from puerperal fever was three-fourths of one per cent.

DR. KING, of Missouri, thought carbolic acid a poor antiseptic when used in ten per cent. solutions. A five per cent. solution has little influence on microorganisms. He preferred the bichloride of mercury. Vaginal injections are sometimes dangerous. When the tube is introduced within the vagina, the circular muscular tube may contract, and the fluid may be forced into the *cavum uteri*, through the tube, into the peritoneal cavity. In intrauterine irrigation, it is necessary to secure an adequate return flow.

DR. SARGENT, of St. Louis, urged the employment of the double catheter for intrauterine irrigation.

DR. C. R. REED, of Ohio, narrated the histories of four cases of puerperal fever in primiparæ, occurring in

his practice in the month of April. Three cases survived under the opium and quinine treatment. One case, passing out of his hands, died. He did not believe in antiseptic midwifery.

Dr. T. A. Reamy, of Cincinnati, entered a protest against the use of vaginal injections in the *puerperia* following strictly normal labors.

Dr. W. W. Potter, of Buffalo, believed in the prophylaxis of puerperal fever. When the temperature reaches 100° F., during the *puerperium*, he becomes suspicious of a retained shred of membrane or decomposed clot of blood, and, in many cases, resorts at once to intrauterine irrigation with Chamberlain's glass tube.

Thursday, May 6.—Third Day.

Dr. J. F. T. Payne, of Texas, reported,

A remarkable case of congenital absence of the ostium vaginæ, and delivery by the anus.

On April 24, 1885, late in the evening, Dr. George S. Sykes, of Galveston, was called to attend Mrs. H. T., who was in labor. She was thirty-five years old, and bore every sign of perfect physical development. The midwife said she had been in labor since the preceding midday. The bag of waters had been ruptured early in labor, and the patient was very much prostrated by her protracted and inefficient efforts to expel the fœtus. Examination revealed entire absence of the vaginal orifice, and the finger, passed along the perineum, sank into the distended anus, and encountered the fœtal head just within the opening. The anus was dilated to about the diameter of three inches. Never having met with such a case, the attending physician sought the advice of Dr. J. F. T. Payne.

Examination confirmed the diagnosis. The fœtal head was found within the rectum, arrested at the distended and resisting anus. A clammy skin, sighing respiration, rapid, feeble pulse told the story of strength wasted by a fruitless labor. Uterine inertia; the anus though considerably dilated, was insufficiently so to admit the passage of the head, and was rigid and unyielding. The indications were too clear to admit of a doubt as to the treatment. Chloroform was administered, a Simpson's obstetrical forceps applied with comparatively little difficulty, and by moderate effort the head was promptly delivered. The shoulder and trunk were brought into the world by a *vis a tergo*, exerted by squeezing and downward pressure on the uterus through the abdominal parietes. The placenta was speedily expelled by expression. There was no apparent laceration of the anal sphincters. There was no unusual hemorrhage at the time of the accouchement, nor was there subsequent oozing. Firm tonic contraction of the uterus quickly followed a dose of ergot. The anus regained its normal characteristics within a few hours. Subsequent treatment: Rest, antiseptic irrigations *per rectum*. Patient sat up on the sixth day, and entered upon her accustomed domestic vocations at the end of the second week.

On the eighth of October, five months and sixteen days after her accouchement, Dr. Paine examined the case thoroughly, and found complete absence of the ostium vaginæ. All the parts within the vulva presented the characteristics of virginity—the clitoris, normally developed and situated; the vestibule and posterior commissure bore no signs of having been stretched, distorted, or lacerated by childbirth; the urethra was in its proper place; the nymphæ and labia majora were in every respect natural in their virgin symmetry of outline. Two fingers were readily introduced into the rectum, and passed upward along the anterior rectal wall for a distance of about two inches, when it was clearly appreciable that the surface gradually sloped forward and upward, and merged into the anterior vaginal wall, which, at this point, was natural in its anatomical relations. From a half to an inch below the os uteri, could be distinctly felt the free edge of a membranous curtain which represented the upper third of the recto-vaginal septum. There was nothing abnormal either in the size or position of the uterus, or in its relation to the vagina. Examination with the speculum fully confirmed the revelation of the digital exploration. The most painstaking investigation failed to detect the slightest trace of cicatricial tissue. The conclusion was that the malformation was congenital.

This woman has borne three children, all at full term, and well-developed but dead. The cause of death seemed to lie in the early drainage of the amniotic fluid and the protracted labor. Nothing noteworthy occurred during the day of the accouchement, except continuance beyond ordinary limit, and the exhaustion which, as a natural consequence, ensued. Her labors had lasted, she said, about two days; but had not, in any case, been followed by fever, pain, abnormal discharge or other evidences of inflammatory action. Her recoveries had been uniformly short; sitting up on the sixth day, and resuming her ordinary duties at the end of the second week. Menstruation has always been regular (except during pregnancy) and painless. Sexual desire and its gratification during coitus were in every respect satisfactory. She had never been made aware, either by the exit of the menstrual flux, the method of sexual intercourse, or even the strange manner of her accouchement, that she was different from other women. Her husband, after being closely questioned, asserted most positively that he had never entertained the faintest suspicion that there was anything the matter with his wife out of the usual order of things.

Dr. Willis P. King, of Sedalia, Mo., offered some remarks on

Pelvic inflammations and accumulations.

Collections and accumulations within the pelvic cavity of inflammatory origin are serous or purulent. Serous collections are situated high up and are really examples of encysted peritoneal transudations. In these, the prognosis is less favorable than in circumscribed collections of pus. Pelvic abscesses are usually situated on a lower level near or in the *cul-de-sac* of Douglas. These he treated by antiseptic incision through the vagina, continuous drainage, and antiseptic packing of the vagina. Sometimes he opened these abscesses by Hilton's method.

Dr. French, of Minneapolis, limits the treatment by aspiration to serous effusions. He recommends divulsion rather than incision, on account of hemorrhage. He exhibited a self-retaining, horned drainage tube. In a certain class of cases of pelvic abscess, he insufflated the abscess cavity, after the evacuation of pus, with iodoform. He used an insufflator with an aurist's mouthpiece.

Dr. W. W. Potter, of Buffalo, suggested for continuous drainage the self-retaining catheter of Nélaton. He thought Dr. Gehrung's ingenious insufflator the best he had seen.

Dr. Harvey, of Indianapolis, had employed the peroxide of hydrogen in the cleansing of the cavities of pelvic abscesses with benefit. The cessation of effervescence indicates the time when the pus has disappeared. He had now under treatment an abscess with fifteen sinuous tracts communicating with its cavity, which is improving under irrigation with peroxide of hydrogen.

Dr. S. C. Gordon, of Maine, agreed with Dr. Potter that the use of the sound is the most common cause of pelvic abscess. Prevention is better than cure. It is possible to prevent the formation of pelvic abscesses. Every case of pelvic cellulitis ought to terminate within seven or eight days.

His treatment of pelvic cellulitis is by quinine and opium—large doses (no aconite, veratrum viride, or cardiac depressants); stimulants, food, rest; third to fifth day, apply large blister over the lower part of abdomen. In nine out of ten cases, it is possible by this means to prevent the formation of an abscess. This doctrine is essentially that taught by Peaslee since 1856. When an abscess does form, it should be immediately evacuated.

Dr. Haggard, of Nashville, referred to the importance of the prophylaxis of peri- and para-metritis. The use of the sound and the indiscriminate employment of the applicator are responsible for a large number of these cases.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, April 26, 1886.

The President, Charles McBurney, M.D., in the Chair.

TALIPES EQUINO-VARUS; CUNEIFORM OSTEOTOMY.

Dr. Poore exhibited a patient, aged ten years, on whom he had performed a cuneiform osteotomy for congenital talipes equino-varus. The patient had never had any treatment for the deformity, which was confined to the left foot. There was marked adduction of that portion of the foot anterior to Chopart's joint, with great rigidity of the tissues on the inner side of the foot; so that all attempts to change the position of the anterior portion of the foot failed, notwithstanding the use, on several occasions, of Bradford's instrument for forcibly rectifying this deformity. There was also marked stiffness of the ankle-joint, so that it was impossible to obtain any motion at that articulation, with the use of any justifiable force. Under these circumstances, Dr. Poore determined to remove a V-shaped piece from the outer aspect of the foot. The operation, as advocated by Davy and others, consists of removing a wedge of bone, base outward, including portions of the cuboid, scaphoid, and os calcis, and the head of the astragalus, thus destroying most of the tarsal joints.

On the patient shown, a wedge was removed from the anterior portion of the os calcis and from the neck of the astragalus, of sufficient size to permit of the anterior portion of the foot being brought into a straight line with the rest of the foot. In these cases the anterior portion of the os calcis is elongated, and the neck of the astragalus occupies a more anterior position. The operation does not open any of the tarsal articulations, does not shorten the foot anterior to Chopart's joint, and leaves it in a more useful condition. The patient walks with but a slight limp, and is regaining motion in the ankle-joint. He has no pain about the foot. The wedge of bone was removed by means of a thin chisel.

COMPOUND COMMINUTED FRACTURE OF THE THIGH.

Dr. George A. Peters read the following extracts from the case-book of St. Luke's Hospital:

August Gross, æt. sixteen, a native of Germany. Admitted to St. Luke's Hospital, April 22, 1885, in service of Dr. Peters. Personal history negative, except of cardiac disease. He had a loud systolic murmur at apex of heart, and the beats were somewhat intermittent. About five o'clock P. M., while cleaning a horse, he was kicked, and knocked under the horse and trampled upon.

On admission, there was found a compound fracture of the right femur, with the external opening at the upper and posterior part of the thigh. The finger detected a sharp end of the lower fragment very easily. He had also a lacerated wound of the anterior surface of the left leg, which was undermined at the upper angle for about two inches, and, in addition, a contused scalp wound.

At 9.30 P. M. he was etherized, Dr. Peters operating. The surface of the limb was thoroughly cleansed and rendered aseptic. An incision two and a half inches long was made over the external opening down to the bone. The fracture was then determined to be comminuted, with a large portion of the anterior surface of the shaft of the femur chipped off, but attached at its lower end by the periosteum. This was removed, and found to measure six inches in length, by one inch in width. In its broadest part it included a little over one-half of the medullary canal. One other very small piece was found and removed.

The two bevelled surfaces of the femur were then united by two silver wires, considerable difficulty being experienced in this step of the operation. The wires were twisted, and the ends left projecting from the external wound. A rubber drainage-tube was inserted, and the incision was closed with a continuous catgut suture. The wound was well dusted with iodoform, and a dressing of iodoform gauze, bichloride gauze, borated cotton, and a Lister bandage, applied. The foot was slightly everted, and a long Lister splint, from toes to thorax, bandaged on. Buck's extension, with a weight of five pounds, was ordered, and the patient placed in Dr. Ludlow's modification of Dr. Crosby's bed. The wounds on the left leg and scalp were dressed with iodoform gauze, bichloride gauze, and borated cotton. Patient passed a pretty comfortable night, needing only a small dose of morphine.

April 25. The wound was redressed. There was a very free discharge, but no collection of pus. The temperature rose to 103° on the afternoon of the 25th, and to 103.5° on the 26th and 27th. These were the highest points reached during the entire course of the case. Repeated examination of the urine gave no evidence of renal trouble. The cardiac murmurs were mitral obstructive and regurgitant, and aortic direct and regurgi-

tant. The wounds were dressed every other day in the same manner as at first. The drainage tube was removed May 11. At that time the wound had gaped, and there was free drainage.

June 18. There was considerable firmness in the thigh.

July 21. Wound was dressed about once a week. There was a considerable amount of union, and Dr. Peters removed almost all the wire. On July 22 a spica of plaster of Paris was applied from ankle to ribs, and the patient was allowed to be up in a wheel-chair on the 24th.

28th. Some more wire was removed, but a little was left in the bone. The wound was healthy. A new splint was applied.

August 5. He was allowed upon crutches.

7th. Patient turned quickly, and foot slipped forward from a sling which he wore suspended from his shoulder, which caused him considerable pain. This was relieved by extension.

9th. There was no increase of discharge from the wound, and the extension was removed August 13.

30th. There were two large sinuses leading down to an area of exposed bone 2 x 1 inches. The wire could not be detected.

September 8. There was considerable bony union. A new splint was applied. September 10th he was allowed to sit up in a chair.

October 23. Loose bone was detected through the sinus.

December 2. The plaster splint was removed. The bone was found firmly united. The trochanter rotated in its normal arc. The limb was washed and bandaged, and coaptation splints applied.

14th. A piece of the lower fragment, measuring 2½ by ⅞ inches, was removed from the sinus. It contained one of the drill holes made by Dr. Peters. The following day an irregular fragment of bone half an inch long and a piece of silver wire were removed. Examined by Drs. Peters, Abbe, and Bangs, who found the bone solid, and fusiform in shape. They were unable to feel the site of fracture. There was 1¾ inches shortening.

17th. He was allowed to take a few steps on the right foot.

18th. All splints were removed, and a simple dressing applied to the wound, which was healing nicely.

22d. Passive motion of the knee was begun.

24th. The flexion of the knee, without pressure, equalled 45°. Patient was instructed to persevere in passive motion of knee, and discharged cured. In hospital eight months.

Dr. Peters exhibited the patient, and also the pieces of bone removed, to the Society. He stated that there was now about an inch of shortening. The good result in this case was largely due to Dr. Ludlow's modification of Dr. Crosby's fracture-bed, which is used at St. Luke's Hospital.

DR. JOSEPH C. HUTCHISON, of Brooklyn, N. Y., read the history of

A CASE OF CLOSURE OF THE ORIFICE OF THE CYSTIC DUCT BY A GALL-STONE; ABSCESS OF THE GALL-BLADDER; CHOLECYSTOTOMY; RECOVERY.

(See page 569.)

DR. T. M. MARKOE remarked that he now had a case which he is carefully watching with a view to operating. It is quite different from Dr. Hutchison's, however, in the fact that the distended gall-bladder can be made out very clearly. He thought jaundice is rather the exception than the rule in these cases.

DR. C. K. BRIDDON said that, in the history of the case, Dr. Hutchison had mentioned that an irregular practitioner had made the diagnosis of neuralgia of the stomach. Such cases as this are often so obscure, however, that he thought the practitioner might be excused for his mistake. It is extremely difficult sometimes to differentiate the paroxysms of pain caused by a gall-stone from neuralgic affections of the stomach.

DR. HUTCHISON stated that he had not intended to cast any reflection upon the practitioner referred to.

PERITYPHLITIS.

DR. H. B. SANDS said that as there seemed to be no further desire to discuss Dr. Hutchison's paper, he would direct the attention of the Society for a little while to the subject of perityphlitis. Within the last four months a number of cases had come under his observation, and they had had the effect of impressing very strongly upon his mind the necessity of absolute rest in the treatment of this affection.

He could recall the case of a physician suffering from perityphlitis, who was doing fairly well, but who, while the disease was in progress, was allowed to take several cathartic medicines, each of which only aggravated the trouble. Finally, after a copious passage, produced by an enema, he became collapsed, and death soon followed. The autopsy was made by Dr. Peabody, but no cause was found for the existing perforation of the appendix. In this case it was very evident that for a while the difficulty had been confined within narrow limits; and it could not be doubted that a better chance of recovery would have been afforded if the patient had been kept absolutely quiet, and opium given, instead of cathartics.

The second case referred to, was one which he saw in consultation with Dr. Ball. The patient was over sixty years of age, and he was called in because the symptoms were supposed to be those of strangulated hernia. It was true that the man had a hernia of the right side; but the hernial sac was so flaccid that the present trouble could not be referred to this. The symptoms, also, were not exactly those of strangulated hernia. The case was in reality one of perityphlitis; but the patient was allowed to get up and go down town. The result was that peritonitis set in, and he died a short time afterward. The post-mortem examination showed perityphlitis, with perforation of the vermiform appendix, and an empty hernial sac on the right side. This case, also, he thought, emphasized the importance of rest and opium in perityphlitis.

The third case, like the first, was that of a physician. He had signs of intestinal obstruction, during the progress of peritonitis, and the only reason why it was supposed the trouble began in the vermiform appendix was because there was slight pain in the right inguinal region. Later the abdomen became distended, and the temperature ran up to 104° F. Dr. Janeway was in attendance, and treated the case by rest, hot fomentations, and opium. The temperature, which had ranged from 102° F. to 104° F., was then brought down to 101°, but the pulse continued rapid. Dr. Sands was called

in on the fifth day. The belly was then enormously distended, but no local swelling could be detected. He did not urge an operation, as he thought it would offer but little chance of recovery. A fatal result ensued, and the autopsy showed that death was due to universal peritonitis, originally caused by perforation of the vermiform appendix. The pus was not enclosed, as is usual in abscesses of this kind. Dr. Sands thought it was doubtful if the life of the patient could have been saved by an operation, if it had been performed at the time when surgical aid was called in. The only chance for a successful operation in this case, he believed, would have been an early laparotomy, if an early diagnosis had been possible.

The fourth case he saw in consultation with Drs. Loomis and Conway, and he operated on the fourteenth day of the disease. The patient was a young man of twenty-one, who was very stout. A deep-seated tumor had been discovered, and it was accompanied by sweating, rise of temperature, and other symptoms of perityphlitis. In this operation he met with the accident, for the first time in his experience, of cutting the intestine; and this, notwithstanding the fact that a hypodermatic syringe was first resorted to, with the effect of withdrawing some pus. When the tumor had been arrived at, all who were present had the impression that a piece of intestine was being dealt with, and it seemed to Dr. Sands that there was a portion of the cæcum in the wound, instead of the usual abscess cavity. He made a cut with the scissors, and the impression conveyed to his mind was that he was cutting intestine. From the opening there came pus and air, but no feces. The next day (Sunday), however, feces made their appearance, and by Monday night they were flowing away in large quantity. This free flow of feces continued for about ten days, but at the end of two weeks it had ceased altogether. The patient got entirely well in three weeks. Dr. Sands said that in this instance the hypodermatic needle must have passed through both walls of the intestine before penetrating the abscess.

He then mentioned two cases which he had seen very recently. One of these was that of a young lad, the son of a physician. There were symptoms of peritonitis, in connection with perityphlitis, and after discussing the subject thoroughly with Dr. Sands, the father declined to have an early operation performed. The case went on pretty well for a week, but on the ninth day the patient became much worse. There was subnormal temperature, distention of the abdomen, and vomiting, and the condition was in every way alarming. Dr. Sands operated in the usual way April 24, and the abscess cavity was found to contain pus and feces. The patient, when last seen, was convalescent.

In a case in which he operated on Sunday, April 25, the patient was a lad of fourteen. The first symptoms had appeared just one week before, and he first saw him on Wednesday, when he thought there were signs of perforation on the side of the peritoneum. There was marked tympanites, and he was unable to make out the presence of a circumscribed tumor; although Dr. A. H. Smith, who had been in attendance previously, said that he had discovered one when the abdomen was not so much distended. Dr. Sands saw the case again on Saturday, when the condition was found to be very bad. As in the previous case, he debated very carefully whether to cut in the median line or at the side, and thought it preferable to make the incision in the latter position. Accordingly he operated at two P. M. on Sunday (Dr. Hall assisting), but at six P. M. on the same day he was called in to see the patient die. At the time of operation, when the layers of the abdomen were cut down upon, about half an ounce of pus was seen to flow from a small opening, and the lining of the abscess cavity was found to be very smooth. The abscess was doubtless in the cavity of the peritoneum, and the case, as had been suspected, was one in which perforation had occurred toward the serous membrane, and not one of perityphlitis, amenable to the usual operation.

In closing, Dr. Sands said that he wished to call attention especially to the question whether in these cases laparotomy was preferable to the ordinary operation for perityphlitis. When peritonitis had become general, laparotomy, in his opinion, offered no hope of saving life.

DR. BRIDDON said that he was inclined to doubt whether Dr. Sands had in reality wounded the intestine in the case in which he believed this accident to have occurred. If he had done so, he did not think the patient would have recovered so readily.

DR. SANDS replied that it was quite possible to have a simple wound of the intestine, and have a rapid recovery also. A remarkable example of this had occurred in his own hospital experience. A young man was accidentally shot in the abdomen with a thirty-eight calibre ball, which entered the body on the right side of the median line, close to the pubes. The house-surgeon probed for the ball unsuccessfully; but obtained no feces. The wound was received at twelve minutes past twelve, and at twenty minutes of six Dr. Sands operated after probing with the same result as the house-surgeon. He made an incision as far as the spine of the ilium, about five inches altogether; but did not succeed in finding the ball. It was noticed, however, that there was some deep emphysema, to which Dr. Dennis has lately called attention as a sign of perforation of the intestine. The external abdominal ring was somewhat patulous; but not more so than is often found to be the case. The operation was done on a Wednesday. On Thursday Dr. Sands saw the patient again, when he appeared to be in no danger. On Friday, however, a flow of feces commenced. He pulled out the drainage tube, which he had left in position; but was unable to tell where the feces came from. Afterward, however, air and feces came distinctly from the external abdominal ring; and the bullet must, therefore, have entered the abdomen through this natural opening. The patient got well, and this case was cited, he said, in order to show that a temporary fecal fistula may sometimes be established.

Dr. Sands then went on to say that the question which he had raised was, whether, in the experience of the members present, laparotomy had ever been successful in cases in which there was perforation of the vermiform appendix, and general peritonitis. Dr. Burchard, he believed, had claimed that life could sometimes be saved under these circumstances.

DR. BRIDDON said that he had seen autopsies in cases in which it semed to him that laparotomy might

have a chance. These were made in cases of sudden death following symptoms of perforation; the conditions found being gangrene and rupture of the appendix, without any conservative process.

Dr. R. J. Hall said that there were some cases commencing like perityphlitis which were relieved by cathartic treatment. Two years ago he had met with such a case. The patient was a boy, who had a local tumor, and suffered from a chill, followed by rise of temperature, and other symptoms of perityphlitis. He expected to have to operate, but concluded for the time being to wait, and give opium. The patient, to his surprise, got better, instead of worse; though the tumor still remained. Finally he gave an enema, and after free evacuation of the bowels the tumor disappeared. It had, therefore, been caused by impaction of feces in the cæcum, instead of perityphlitis.

Dr. Sands said that he thought we should be very careful to remember that the case mentioned by Dr. Hall must be of a very exceptional character. Cases of this kind were nothing like so common as cases in which perityphlitis is mistaken for impaction of feces in the cæcum. Then, again, it must not be forgotten that cecal impaction may eventually result in perityphlitis. It is better, therefore, in any doubtful case, first to treat the patient with opium, and await future developments.

Dr. Hall then remarked that his patient had all the symptoms indicating the presence of an inflammatory process.

FOREIGN BODY IN THE ŒSOPHAGUS.

Dr. A. G. Gerster presented a specimen which, he said, constituted an interesting contribution to the subject of foreign bodies in the œsophagus. It was taken from a child twelve months old, in whom signs of respiratory difficulty, apparently in the larynx, first showed themselves at the age of six months.

About two months before Dr. Gerster saw the patient, a specialist in diseases of children was called in consultation, and made the diagnosis of a tumor, with a broad pedicle, in the larynx.

There was increasing difficulty in respiration, with occasional aggravated paroxysms; and when the case came under his observation, he found that there was frequent respiration, and that the dyspnœa was principally expiratory, there being little difficulty in inspiration. Owing to the paroxysms set up by the attemp to make a laryngoscopic examination, it was impossible to get a view of the parts.

Up to this time the general condition of the child had been good; but there was now considerable trouble in deglutition, and it began to fail appreciably. The most careful inquiry failed to elicit the history of any foreign body having been swallowed.

In view of the frequency of the attacks of suffocation now met with, he advised an exploratory tracheotomy; to which the parents consented. On account of the exceedingly short and thick neck of the infant, he was obliged to select the upper operation; but when the trachea was opened, he was disappointed at not finding the least improvement in the respiration. A soft catheter was introduced into the trachea and the bronchi, but no abnormality could be detected.

One very curious thing, however, was noticed. When a canula was introduced into the trachea, the difficulty of respiration increased; but as soon as he placed his finger over the mouth of the canula the breathing became easier.

Fearing to keep the child, who was in very bad condition, longer under the influence of anæsthetics, he ordered the canula, with its orifice plugged, to be kept in position; his design being to keep the trachea open, and on a future occasion to make a more careful examination. The next day, however, pneumonia set in, and in three days death resulted. At the autopsy the larynx was found to be entirely normal, but a little lower than midway between the cricoid cartilage and the bifurcation of the trachea there was a triangular defect of the trachea, and at the seat of this defect the sharp edge of a metallic body projected into the trachea for about three millimetres. The foreign body was a flat brass button, three-quarters of an inch in diameter.

Corresponding to the defect in the trachea was another defect in the œsophagus, circular in shape, and about one centimetre in diameter. The foreign body was embedded in the tissues between the trachea and the œsophagus; being held in position precisely like a picture by its frame. The ulcerative process had evidently terminated by complete cicatrization. No active inflammation was found in progress at the time of death; but the tissues were considerably thickened by former inflammatory processes.

Dr. Gerster said that among the questions which suggested themselves in connection with this case were the following: How shall we explain the fact that there were no symptoms of any great dyspnœa at the time the foreign body was swallowed? Why is it that the symptoms of pronouced dyspnœa have developed so late? In answer to the second inquiry, he said that as time went on the cicatricial contraction of the parts became greater, and thus the symptoms of dyspnœa and dysphagia became progressively aggravated.

Another question that might arise was, How shall we explain the difficulty of expiration, as contrasted with the comparative ease of inspiration? This, he believed, was on account of the position of the foreign body, which was slanting, and gave to it the action of a valve. The stream of air rushing up from below had the effect of raising up the projecting edge of the button, and thus placing it more transversely to the axis of the trachea. The minute dimensions of an infantile trachea, still more reduced in this case by cicatricial contraction, would be influenced by very minute changes of position.

As regards the question whether the foreign body could have been extracted, he felt constrained to express a negative opinion. If, after tracheotomy, he had made use of a metallic probe, instead of the soft catheter, he would undoubtedly have detected the presence of the foreign body; but he doubted whether it could have been removed through the trachea without producing instant death from suffocation. On the other hand, it could not have been extracted from the œsophagus, on account of the rim of thickened tissue which held it.

Dr. T. M. Markoe referred to a case recently reported by Bennett May, in which he successfully extracted a foreign body which had been in the œsophagus for three years, and had ulcerated partly into the trachea. In answer to a question by Dr. Gerster, Dr. Markoe

stated that the child in this case was seven years old, and that he fully appreciated the marked advantages which this greater age would give over the case of an infant such as Dr. Gerster's patient.

Dr. R. F. Weir asked whether he rightly understood Dr. Gerster to say that the attempt to remove the foreign body would have produced instant death.

Dr. Gerster said that he believed that it would have done so, because the diameter of the button was larger than the calibre of the trachea; and hence it would have completely plugged the passage up, and probably for a sufficiently long time, during the attempts at extraction, to cause suffocation.

Dr. Weir then said that he differed from Dr. Gerster on this point, as in operations upon the throat he had more than once seen the trachea entirely occluded temporarily in a digital exploration, without any serious result following. He, therefore, thought that if the foreign body could have been seized, it might have been safely removed. The risk of suffocation would come from the button slipping from the grasp of the forceps after it had been lifted out of its bed, and even then experience has already shown that such bodies often tilt sideways, so as to offer the least obstruction to air currents.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

Eighty-eighth Annual Meeting, held at Baltimore, April 27, 28, 29, and 30, 1886.

(Specially reported for The Medical News.)

Wednesday, April 28.—Second Day.

Dr. Randolph Winslow presented a

SUPPLEMENTARY REPORT OF THE SECTION ON SURGERY.

He said, in summarizing the prevailing professional opinion in regard to the treatment of penetrating abdominal wounds, it appears that there is an almost unanimous consent to the propriety of performing laparotomy where there is reason to believe that serious injury of any of the hollow viscera has occurred, or that hemorrhage is taking place; but there are certain cases in which the nature of the lesions is doubtful, and it is in such cases that diversity of opinion exists. In the suturing of intestinal wounds the cut surfaces should never be brought together edge to edge, but by means of the Lembert suture the peritoneal borders should be so inverted that narrow bands of peritoneum are approximated, as by this means union is more easily effected.

Amongst the important questions which are now engaging the serious attention of the medical profession, the world over, there is probably none of greater practical interest than the treatment of intestinal obstruction.

The causes of obstruction of the bowels are many, but the most frequent are constrictions, volvulus, and intussusception. In the large majority of cases an accurate diagnosis cannot be arrived at, and surgeons are not agreed as to whether these obscure conditions are best treated by medical or by surgical means, but there is a tendency to resort to laparotomy. Dr. Jonathan Hutchinson, of England, deprecates opening the abdomen until other means have failed, and reports a number of cases treated successfully by a method which he calls abdominal taxis, or muscular treatment.

In Dr. Winslow's opinion, a case of intestinal obstruction should first have the benefit of rational medical treatment, first by laxatives, to overcome a possible obstinate constipation, then by copious enemata with the patient in the genupectoral or completely inverted position. If the symptoms are not severe, belladonna or opium may be administered in large doses; but if the patient presents urgent symptoms—severe pain, obstipation, constant vomiting, especially if the character of the latter becomes feculent—no time is to be lost: the abdomen should be opened in the linea alba below the umbilicus, the cause of the arrest ascertained, and the constriction released. He thinks a strangulated bowel within the abdominal cavity should be treated pretty much as a strangulated bowel outside of it. Dr. Illoway, of Cincinnati, strongly advocates the employment of enemata under heavy pressure; this, however, seemed to him a dangerous method, as the bowel may be ruptured or a gangrenous intussusception may be thrust backward into the peritoneal cavity.

On December 8, 1885, he opened the abdomen of a young woman who for seven days had had symptoms of intestinal obstruction as denoted by severe pain, obstinate constipation, constant vomiting, and at last the ejection of stercoraceous matter. Medicine and enemata having failed to give relief, laparotomy was performed, and the constriction found to be in the ileum, a loop of which had become adherent to the pelvis between the sacrum and rectum, with complete stoppage of its functions and great distention and congestion of the intestines. After much difficulty the adhesions were broken up and the loop of intestine released. The patient vomited stercoraceous matter whilst on the operating table and never had nausea or vomiting afterward. She did not present a bad symptom after operation, and made a complete and speedy recovery. Two other cases have been treated in this city.

Dr. J. W. Chambers then presented a paper entitled

WHAT IS THE PROPER TREATMENT IN CHRONIC SUPPURATIVE AND ENLARGED GLANDS OF THE NECK?

Such conditions are commonly classed as strumous glands or tuberculosis. If the alleged facts of Koch in regard to the relation of the bacillus tuberculosis to all caseous foci can be considered established, they go far to dispel the theory of "caseous infection." Such facts leave scrofula to mean a little more than a certain frailty of certain tissues and a susceptibility to injury that makes them particularly liable to chronic inflammatory disorders.

There seems to be but little question as to what are the dangers in "caseous foci," wherever formed, or however formed. Clinically speaking, they are malignant glands, and as such should be treated. The surgical fear of deep-seated cellulitis of the neck has lost its terrors under the influence of antiseptic surgery; and with anæsthetics and proper dissection, bleeding and shock are not now prominent dangers; and we are only limited by anatomical reasons in the extent to which we should attempt the removal of these glands.

He related four cases treated by the removal of deep-seated glands of the neck. In two of these cases, the glands lay beneath the deep cervical fascia and sterno-

cleido-mastoid muscle. In Case II. the upper and lower cervical glands were involved, so that in the removal the external jugular vein was cut between two ligatures in the post-triangle, and both external jugulars laid bare. Even the common sheath to artery, vein, and nerve was opened, and they were readily recognized at the bottom of the wound. And yet there were no symptoms, either during or after the operation, which would indicate that the important nerves had been tampered with; nor was there any evidence that one of the large veins had been ligatured; and the wounds afterward healed from top to bottom without any pus whatever. There was a slight transient rise of the temperature during the first twenty-four hours, but it was not accompanied by any signs of septic absorption, such as headache, etc. The dressing was left undisturbed for several days. The whole neck was firmly bandaged after having been packed with oakum.

THURSDAY, APRIL 29.—THIRD DAY.

DR. B. B. BROWNE read a paper on

THE CURETTE AS A DIAGNOSTIC AND THERAPEUTIC AGENT IN GYNECOLOGY AND OBSTETRICS,

in which he presented the following conclusions:

1. That the curette is an important diagnostic agent in all obscure affections of the uterus.

2. That its use is less painful and less likely to set up cellulitis than the ordinary caustic and alterative applications.

3. That it is more efficient for the removal of endometrial growth than any other agent.

4. That after abortions its proper use will prevent hemorrhage and septicæmia.

5. That after labor the antiseptic fingers or hand used as a curette for the complete evacuation of the uterus, will lessen the dangers attending the puerperal state, will prevent fetid lochial discharge, and hasten the period of involution.

DR. GEORGE W. MILTENBERGER then read a paper on

PUERPERAL ECLAMPSIA.

He stated that the disease may be due to either centric or eccentric causes and that the remedies to be employed should be those which act upon the nervous centres and those which act upon the seat of the peripheral irritation. In appropriate conditions he held that bloodletting is the most powerful and direct remedy.

DR. P. C. WILLIAMS was glad that Dr. Miltenberger had had the courage to recommend venesection in certain cases. There are cases where its action is undoubtedly remedial. He also endorsed the distinction made in the paper between the conditions of anæmia and congestion in eclampsia, and the importance of recognizing the conditions if we would treat our cases successfully. He spoke also of the good results he had obtained from the use of a combination of chloral and jaborandi especially in uræmic convulsions.

DR. JOHN MORRIS said he had just been treating a case of eclampsia with most satisfactory results, using venesection, after chloroform had failed, with great temporary relief, and with the effect of dilating the os. Digitalis and jaborandi were afterward given. The child was delivered with forceps. The convulsions returning, chloral and morphia were given, being poured down through the nose.

DR. JOHN S. LYNCH agreed with Dr. Miltenberger on most points, but protested against the revival of venesection. The paper admitted a falling off in fatality since venesection ceased to be generally practised. A few cases are helped; but to teach its advisability to young men who may not be able to distinguish between the condition of anæmia and congestion is very dangerous. His rule is to administer chloroform first and then morphia. He could not see why chloral should be recommended. It is a hypnotic, not an anodyne. As to bloodletting, veratrum viride has all its advantages and none of its disadvantages.

DR. WILLIAMS thought Dr. Lynch's position a dangerous one, and did not see how a teacher can refrain from recommending measures on the ground that they might be abused. Such a doctrine would lead us to discourage the use of forceps. As to chloral, it is a nervous sedative identical in action with chloroform, into which it is changed in the body.

DR. A. B. ARNOLD considered that eclampsia is epilepsy in an acute form. The danger arises from the long continuance of the attacks—even epilepsy will kill if attacks recur with great frequency. Eclampsia, like epilepsy, is produced by a peculiar impressibility of the nervous system. Our dependence must be upon sedatives, chloral, chloroform, morphia, bromide of potassium, belladonna.

DR. LYNCH stated that in his teaching he recommends the forceps because there is no substitute for them. He considered that in teaching young men the safest measures should be recommended so far as possible. He, therefore, recommends veratrum viride as safer than venesection.

DR. MILTENBERGER closed the discussion by saying that the only discrepancy in opinion was as to the value of venesection. He had explained that, except in conditions of congestion, the benefit of bloodletting is only apparent, and that it is injurious. But in cases of congestion he challenged the world to show a better remedy. This remedy had held its own in spite of all the efforts that had been used against it.

FRIDAY, APRIL 30.—FOURTH DAY.

THE COMMITTEE ON MEMOIRS

reported the death during the past year of four members of the Faculty, viz., Drs. Richard McSherry, Edward De Loughery, Thomas Dougherty, Edward Schwartze.

DR. RICHARD H. THOMAS read a paper entitled

THE HOME TREATMENT OF ORDINARY PHTHISIS AS AFFECTED BY THE BACILLUS THEORY.

He said that while the revolution that Koch's theory had produced in our ideas in regard to the etiology and pathology of phthisis, has not as yet been followed by a similar revolution in the therapeutics of the disease, it has at least had the effect of increasing the accuracy of the object we have in view in treating it. If the bacillus tuberculosis holds a causative relation to phthisis and to its progress, the object of treatment would seem to be to attack it. This has been done in three main lines. 1st. To stop or at least to limit the spread of the disease by destroying its germs, and by disinfecting the sputum, etc., of phthisical patients, some have even advised the isolation of those affected. 2d. To destroy the bacillus

within the lungs, either by antiseptic inhalations or by specific antibacillary medicines taken by the mouth. It has also been suggested to forbid the use of potatoes and other articles of food rich in potassium salts, for which the bacillus has a special affinity, with a view to starving it out. 3d. To render the tissues proof against the bacillus, or at least enable them to resist its influence more successfully by increasing the vitality of the whole system, and particularly of those portions that are specially liable to its attacks.

He said that the effect of the bacillus theory on the therapeutics of phthisis has been chiefly to impress upon the profession the importance of prophylaxis, of cleanliness, fresh air, and the hygienic treatment of the disease.

Dr. E. G. Waters then read a paper on

SEWERAGE AND HOUSE DRAINAGE.

The utilization and final disposal of sewage are questions which have attracted the attention of sanitarians, and claimed the most thoughtful consideration of our ablest engineers. Whether to let it flow away to utter waste in the current of swiftly running rivers, as at Memphis and Liverpool; to subject it to separation and desiccation as at Dortrecht and Amsterdam; or to employ it directly for agricultural uses, by the process of irrigation, as at Paris and Berlin, will depend upon a variety of incidents, having special application to any given case. One feature essential to the success of the latter method is the intermittent discharge of the sewage into the soil to be fertilized. The commercial value of the sewage of English cities is estimated to be about four cents a ton, that of Boston about one cent a ton, and that of New York at a yet lower value.

Saturday, May 1.—Fifth Day.

The Committee to draft a law relating to the supervision of the interests of the insane in Maryland, presented their report, and congratulated the Faculty on the enactment of the new law.

Dr L. F. Morawetz then read a paper on *Mind in Statu Nascente*, and was followed by Dr. J. S. Conrad, with a paper on *The Study of Insanity*.

Dr. John N. Mackenzie then read a paper on

THE RELATION OF CERTAIN STATES OF ATMOSPHERE TO THE PREVALENCE OF CATARRHAL AFFECTIONS OF THE UPPER AIR-PASSAGES,

which is supplemented by the author's more elaborate communication to the American Laryngological Association (1885) on the origin, causes, and geographical distribution of catarrhal affections. The atmospheric conditions discussed were *heat*, *cold*, *moisture*, and *air in motion*. Dr. Mackenzie argued at length the influence of climate from the standpoints of geographical distribution, and their development of catarrhal processes from simple change of residence. Removal from an equable or temperate climate to one in which the atmospheric conditions are constantly changing will often induce them, and acclimation is purchased frequently at the price of a nasal or laryngeal catarrh. It also occasionally happens that change of residence may beget a predisposition to catarrhal affections, which only manifest itself upon the return of the individual to his native air.

Dr. Whitfield Winsey then presented

SOME THOUGHTS ON PHTHISIS PULMONALIS,

in which he inquired into the evidence, as to whether or not the African and mixed races, in whose blood there is more or less of the African, are practically susceptible to the disease. That the different races possess greater susceptibility or immunity with regard to certain diseases is a well-known fact. One of the greatest causes of this susceptibility seems to be the change from his native clime to that of another, whether cold or temperate.

Dr. F. Donaldson, Jr. exhibited a *Pneumatic Cabinet*, and explained it and pneumatic differentiation.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Dr. George W. Miltenberger.

Vice-Presidents.—Dr. Thomas Opie, Dr. Richard Gundry.

Secretary.—Dr. G. Lane Taneyhill.

Assistant Secretary.—Dr. Robert T. Wilson.

Corresponding Secretary.—Dr. T. Barton Brune.

Reporting Secretary.—Dr. Richard H. Thomas.

Treasurer.—Dr. W. F. A. Kemp.

Executive Committee.—Drs. P. C. Williams, John R. Quinan, N. P. C. Wilson, James Carey Thomas, J. Edwin Michael.

Adjourned.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, May 4, 1886.

The President, C. L. Dana, M.D., in the Chair.

Dr. C. L. Dana, President-elect, in his

INAUGURAL ADDRESS,

said he would call the attention of the members to a large gap which exists in our knowledge of the etiology of nervous disease, and to the need of closer examination into this branch of that specialty. At present our knowledge of the etiology of nervous diseases (leaving out poisons) may almost be summed in three words: heredity, syphilis, and rheumatism. Is it not possible that neurologists have neglected to apply the ideas with regard to microörganisms and infection which are now dominating pathology? It is true, however, that Leyden had found a microörganism in cerebro-spinal meningitis, Rosenbach the bacillus of tetanus, and Strümpell had urged the view that acute anterior poliomyelitis is an infectious disease, etc.; yet these points are not solidly established, and the relation of infectious poisons or parasites to nervous diseases deserves closer study. It had seemed to him that many cases of the chorea of Sydenham were really infectious in origin. He would also call attention to the possibility of a parasite being at the root of some of the neuro-degenerative disorders, such as ophthalmoplegia externa, bulbar paralysis, and progressive muscular atrophy. The necrobiotic process which takes place in these disorders is often so steadily and frightfully progressive, so nearly malignant in its fatal course, as to suggest some active agency behind it.

HISTORY OF A CASE OF PRIMARY LABIO-GLOSSO-PHARYNGEAL PARALYSIS.

Dr. E. D. Fisher presented a patient whose history was as follows: Mrs. H., æt. forty-three, had always

enjoyed good health up to July, 1885. At this time she lost her oldest son, who was accidentally drowned. She was much affected by the loss, and was constantly crying and calling for her son. The following September she first noticed some difficulty of speech and inability to move her tongue freely, with also some difficulty in swallowing. Dr. Fisher saw the patient for the first time in February. She then presented the following symptoms: inability to protrude the tongue beyond the teeth, to form the lips so as to whistle or blow, the lower lip hanging down and the saliva running freely from her mouth. The lower part of her face was expressionless. No loss of power of the upper muscles of the face. The patient was unable to pronounce linguals or labials, and also, as the palate was partially paralyzed, was unable to pronounce the explosives; all her tones were decidedly nasal. Her food had to be pushed with her hand to the back of her mouth, when, with difficulty, it was swallowed. There was no tendency for liquids to return through the nose, but they would come out of the mouth. There was no loss of sensation or taste.

The faradic current was somewhat decreased in reaction, but there was no reaction of degeneration to the galvanic current.

These symptoms have all increased since first seeing the patient, and she has lost about twenty pounds in weight. There are no signs of paralysis of the upper extremities; the disease is located entirely in the bulbar nuclei.

The interest of the case lies in the fact that the cause can be clearly traced to the excessive grief at her loss.

Dr. Fisher suggested that, recognizing the lesion as seated in the fourth ventricle, involving the hypoglossal, facial, vagus, and glossopharyngeal, the question of the situation of the facial nuclei be taken up. Clarke has mentioned that the facial has a lower nucleus for the orbicularis oris, and Gowers thinks that fibres for this muscle are given off from the hypoglossal nucleus. Either of these theories would explain the escape of the upper muscles of the face, as is usual in this disease.

The President said there were several obscure points for discussion which Dr. Fisher's case had suggested, among others the question of the etiology of labio-glosso-laryngeal paralysis, some features in its symptomatology and its treatment. Regarding the etiology, it was once claimed, he believed, that the disease was always of specific origin. He had had three cases under treatment for the past two years, and of those only one gave a pretty clear specific history; in the other two no such influence could be detected at all. In the one, although the patient gave some evidence of having had specific disease, yet it was simply assumption that this was the cause of the bulbar affection. In his opinion we could only place specific disease among the predisposing causes.

Dr. M. Putnam Jacobi asked whether the patient had heart disease.

Dr. Fisher replied that the heart had been examined, but no evidence of cardiac disease could be discovered.

Dr. B. Sachs thought the case was one of great interest to all. Bulbar paralysis, he thought, is more common in Europe than in this country. He had seen a number of cases at the clinic for nerve diseases at Strasbourg, under Professor Kussmaul. The etiological factor which Dr. Fisher had mentioned, particularly in his own case, deserved consideration. It was further interesting from the fact that the central lesion in this disease and in diabetes was near the same region, and he had known of a number of cases of diabetes in which the etiological factor was intense emotion.

Dr. Sachs thought it was difficult to explain why in an affection like that from which Dr. Fisher's patient was suffering, in which the pathology was similar to that of progressive muscular atrophy and poliomyelitis anterior, consisting of an affection of the nerve nuclei, there was not the reaction of degeneration in the muscles supplied by the affected nerve nuclei. But it is possible that the reaction of degeneration will appear later.

Dr. Jacobi thought that the suggestion made by Dr. Sachs as to the analogy between bulbar paralysis and diabetes, so far as their possible origin in emotional influences is concerned, was worthy of consideration, and the question had arisen in her mind, whether such emotional influence may not have first influenced the cardiac centre in the medulla oblongata and secondarily contiguous centres. Dr. Jacobi spoke of certain anatomical considerations in connection with bulbar paralysis, and referred to several cases reported by Eisenlohr. It seemed to her that exemption of the upper branches of the facial nerve in typical bulbar paralysis was an extraordinary circumstance, and one which she would be glad to have explained. It seemed remarkable that in Dr. Fisher's case the symptoms could have remained limited for so long a time.

The President had examined the urine for sugar in two cases of bulbar paralysis, but with negative results. With regard to the affection of taste, it is well known that that sense is not usually involved in bulbar paralysis. He had thought that the glossopharyngeal nerve at its nucleus was purely a sensory nerve, and that it received its motor fibres from the spinal accessory, that it supplied taste to the posterior, and perhaps to the anterior part of the tongue. The question as to whether it supplied general sensation to the fauces or posterior part of the tongue, it seemed to him, was involved in considerable obscurity. The cases which he had seen had given no positive evidence that the glossopharyngeal nucleus was involved, except in one in which there was disturbance of the sense of taste, and there had been two other cases reported in which this sense was involved. With regard to the seventh nerve, and involvement of its nuclei, he thought that in some cases the branches of that nerve were involved. In one of his cases the upper portion of the face was not wrinkled, the eyelids could scarcely be approximated, showing that the facial nuclei were becoming involved. Regarding the reaction of degeneration, it is never present except in the latter stages. There might be partial reaction of degeneration at an earlier date. The explanation which he had given was that, trophic centres of the nerve were involved, causing atrophy, to which the paralysis was due.

As to treatment, he thought he should adopt a radically different form from what he had hitherto employed. It seemed to him that the cases improved for a while under electrical treatment, and then such treatment seemed to make them worse. He would give the affected muscles complete rest if possible, and confine the electrical treatment to the stable galvanic current.

DR. SACHS remarked that the phenomena of the reaction of degeneration might be present at first only to a limited extent, developing more completely as the case progressed.

AMERICAN SURGICAL ASSOCIATION.

Seventh Annual Session, held at Washington, D. C., April 28, 29, and 30, and May 1, 1886.

(Specially reported for THE MEDICAL NEWS.)

THIRD DAY, APRIL 30.—MORNING SESSION.

DR. ROSWELL PARK, of Buffalo, exhibited

A TRACHEOTOMY-TUBE

which he had invented as a modification of one invented by Dr. Nairn of Ireland, an account of which appeared in the *British Medical Journal* for last year. The tube consisted of two parts which closed like the blades of a bivalve aural speculum. It was to be introduced closed, tipped by a small olive, and separated, the olive-pointed rod being then withdrawn. The chief advantage claimed for the instrument was the facility with which it could be cleansed.

DR. PARK then read a paper on

LIPOMA TESTIS, OR A LARGE ACCUMULATION OF FAT IN THE TUNICA VAGINALIS.

Lipomata of the spermatic cord, he said, are rare enough always to attract attention, but lipomata of the testicle are of such exceeding rarity that, believing that he had had a case which deserves this designation, he desired to put it on record, and make it the basis for a few comments.

J. K., aged forty, was referred to him by Dr. Conrad Diehl, early in September, 1885. Patient had noticed an almost painless, slow, but continuous enlargement of the right testicle for the past eighteen months. It was then about the size of a cocoanut, and caused inconvenience only by its weight and bulk.

On examination, the scrotum was found filled by a large mass which crowded the left testicle into a small space at its upper part. This tumor was solid, yet soft, not tender, except as the right testicle was pressed upon. On handling it, ill-defined fluctuation was noticed. By exploratory puncture all suspicion of fluid was removed. Patient had every appearance of robust health, and the idea of malignancy could not be entertained. Over the surface of the tumor, the scrotal integument moved with perfect freedom. An exact diagnosis was not ventured, though there was strong suspicion that the mass was fatty; but radical operation was advised, and consented to,

October 4, the patient was operated on by the essayist, at the Buffalo General Hospital. As soon as the tunica vaginalis was incised, a mass of densely packed fat was revealed, which was very slightly adherent to the interior of the tunic. It was turned out without difficulty. After shelling it out, the operator found, on separating its lobular masses with the fingers, that the right testicle was not merely embedded in its upper part, but incorporated with the fat by apparently intimate tissue connection. It was, moreover, supplied with blood both from the testis and from the cord. The cord seemed to enter the tumor, and then pass in its substance for about two inches before reaching the testicle. There were no evidences of past or present hernia. The whole tumor was removed *en masse*. Recovery followed without incident.

The entire mass, after removal, weighed just three pounds. Dissection revealed nothing beyond what has already been stated. The speaker was unable to come to any positive conclusion as to the exact point of origin of the adipose mass. While the blood-supply might indicate one origin, the equally evident blood-vessels from the testicle pointed as strongly to another. The exact origin, although of pathological interest, the speaker deemed of little clinical importance, and considered himself clinically correct in speaking of the case as lipoma testis, or, if the term be preferred, *lipoma intratunicum vaginalem*.

Dr. Park then reviewed briefly the literature on the subject of lipoma testis, ancient and modern, in which he had found a number of supposed cases. He had found, however, that the statement of Delafield and Prudden, that "lipomata, either pure or in combination with myxoma and sarcoma, may arise from the connective tissue of the spermatic cord, or from the tunica albuginea," is the only one bearing on this subject in any of the works on pathological anatomy.

In looking over various authors of the past century, he continued, he had been struck by the looseness of their phraseology concerning affections of the testis. Thus, lipoma testis and fungous testicle are almost synonymous terms, according to their usage. It is not, perhaps, incredible that a tense distention of the tunica vaginalis by a mass of fat might lead to atrophy or even ulceration, and to the formation of an adipose hernia, but in each case that he had alluded to above, where the title would imply a lipomatous condition, nothing of the kind was revealed, but rather one of the true fungous lessions.

Therefore, accepting the cases reported by Kimball, Jobert, and Deguise as authentic, they constitute all that I have been able to find, and I may consistently claim that mine is the fourth on record. This rarity of the lesion, coupled with its pathological interest, and the obscurity of diagnosis attending such cases, must be my excuse for taking up the time of an Association which yet, I believe, is not above a careful study of small things.

DR. PARK then reported

A SUCCESSFUL NEPHRECTOMY FOR FIBRO-CYSTIC DISEASE OF THE KIDNEY, IN A BOY TWENTY-THREE MONTHS OLD.

(See page 567.)

DR. L. MCLANE TIFFANY remarked that while he could not speak from experience, he thought that the propriety of the incision for nephrectomy could not be questioned in this case, as there was no choice to be made.

The point of interest to him had been the author's reference to the transfer of function in this case from one kidney to the other. In his opinion, it was not necessary to suppose that there had been any transfer of function, inasmuch as it has been shown that most of these cases of cystic disease of the kidneys in young children are congenital. It was more than probable that the affected kidney in this case had never performed any function. The disease is frequently found associated with other defects of original structure, as deformities

of the limbs, etc. There appears to be no communication in these cases between the Malpighian capsules and the pelvis of the kidneys, and the urine that is formed in the capsules helps to form the cysts by its pressure and distention.

DR. W. H. CARMALT concurred in regard to the rarity of lipomata of the testes, since he had not been able, in a pretty thorough search of the literature, to find a single case which he could consider as a true lipoma. Tumors about the testes are usually of a mixed variety. When, for example, we have a sarcoma, it is generally a myxo-sarcoma, a fibro-sarcoma, a cystic sarcoma; when we have a carcinoma, it is frequently mixed with some other variety of growth. With this point in view it is proper, he thought, to advise in every case of tumor in this region, the prompt extirpation of the growth.

DR. E. M. MOORE, of Rochester, reported two cases in which he had found a fibroid disease of the kidney. True fibroid of the kidney, he said, is a very rare affection. In one of the cases the kidney tumor, when removed post mortem, weighed ten pounds. In making the dissection of the specimen, the condition described by Dr. Tiffany was not found, but the pelvis of the organ was found to spread out widely until it reached high up into the cortical portion. In another case in which he had made the diagnosis of this condition, the patient lived for eighteen years, the tumor gradually enlarging She finally died as a result of a general suppurative disease occurring in the tumor.

DR. PARK, in closing the discussion, stated that he could not agree with Dr. Tiffany that the affected kidney in his case had been functionally inactive, since microscopic examination showed that the external portion of the organ was almost normal in appearance.

DR. W. W. KEEN, of Philadelphia, then read a paper on

STRETCHING OF THE FACIAL NERVE.

He first cited a case in which he had recently performed the operation; then presented and analyzed a table of the twenty-one cases reported to the present time, since Baum first made the operation in 1878.

His case was that of a woman forty-eight years of age, sent him by Dr. Sinkler. The patient came under his care at the Woman's Hospital, April 1, 1880. She had suffered from severe attacks of nervous trouble in her early childhood, and had twice been paralyzed. Five years ago, coincident with menstrual disturbance, her eyelids began to twitch, and, six months after, the whole face and platysma were incessantly in spasm, increased by any mental or muscular effort—such as eating, speaking, or being spoken to. Later the spasms became painful, and finally the pain remained constant.

In June, 1884, the right infraorbital nerve had been resected with partial relief for only six weeks. Soon after, the twitching extended to the right side and leg.

April 2d, Dr. Keen cut down upon the seventh nerve by an incision behind the right ear (Baum's method), displacing the parotid gland forward and obtaining access to the nerve just after its exit from the stylomastoid foramen. Embedded in the connective tissue, it required considerable search and dissection to lay bare the nerve. The exact place of its entrance into the parotid was quickly discovered by a very weak current of electricity, one electrode being placed on the cheek, the other (only the wire itself) being touched at successive points from above downward. The trunk was then laid bare and stretched, the force being estimated at from four to five pounds—just short of lifting the entire head.

Total facial palsy followed, with relief, not only from the spasms in the face and neck, but also in the side and leg. The wound healed in four days, and the sutures were removed. The temperature did not rise above 100.4° F. Up to the twenty-fifth day no return of the spasms had occurred, and the patient was delighted with the result, the paralysis being a welcome substitute for the spasms.

Dr. Massey had examined the case electrically, and found the reactions of degeneration. The later history of the case will be reported in subsequent years. A review of the table presented indicated that the paralysis always disappears, no matter how severely the nerve has been stretched; and that, although the spasms often return, they are of a less severe character.

In fourteen of the reported cases, the spasms recurred within a week in three; absolute relief extended over from three weeks to four months in five others, in four of them lasting much longer; in the remaining six the relief extended over from four months to a year, with improvement still existing in three of them.

As a palliative measure, therefore, this operation would seem to be indicated; yet, of the five cases reported "cured," two had continued for three months, and three had remained well for from two and a half to five years. Two of the twenty-one reported cases were too recently reported to give the final results.

He expressed decided preference for Baum's method over that of Hueter, in which the nerve is reached through the parotid gland. He bandages the lower jaw and gives fluid food for three or four days, in order to keep the parts quiet while healing.

In conclusion, attention was called to two cases in which palsy existing prior to the operation was benefited by the nerve-stretching, both electrical and voluntary control being obtained to some extent, the essayist suggesting that in persistent facial palsy stretching of the seventh nerve be resorted to a therapeutic operation.

DR. L. MCLANE TIFFANY remarked that he did not desire to enter into a discussion of the paper, although he must express admiration for the operation and the successful result obtained. He desired to know, however, what the object was in operating upon the intraorbital nerve, to which reference had been made? He asked further with regard to the point at which the seventh nerve crosses the chasm between the exit from the stylomastoid foramen and its entrance into the parotid gland, and the method by which its discovery was made with the electric current. Was a strong or weak current employed?

DR. T. F. PREWITT remarked that he did not question the propriety of the operation performed. An important question may be raised here, however, as to the advisability of stretching the entire nerve or only some of its branches.

DR. A. B. WATSON said that the operation was undoubtedly justifiable, even with the hope of giving only temporary relief. It is an operation with which we are not thoroughly familiar—that is, we know little of the changes that are produced in the nerve by the operation. We know that where the stretching is carried to

a sufficient degree, it will produce a paralysis of the nerve and thus relieve the pain. It is advantageous both in cases of neuralgia and in cases of spasmodic disease. Whether the effect is due to the gross changes produced in the nerve or whether it is due to some molecular change, has not yet been determined. In this particular case it would appear that the elongation of the nerve persisted in its effect, and that it possessed advantages over neurectomy which would leave a more extensive scar. Neurotomy, it has been shown, gives only temporary relief, even in the most successful cases. Neurectomy gives better results, and although in most cases its effect is only temporary, the relief may continue for a number of years. It seems in many cases that the relief afforded by a neurectomy depends directly upon the amount of nerve tissue removed. We get better relief from elongation of the nerve than from simple neurotomy.

In the case reported, it seems remarkable that the relief was so general. It would appear that the operator had to deal with a neuralgia of central origin, the central difficulty being for a time relieved by the operation. Which of the methods shall be adopted, the speaker thought, must depend upon the individual case. He stated that he had never elongated the seventh nerve, but had performed the operation with benefit on other nerves.

DR. JOHN B. ROBERTS called attention to a case which had come under his observation, and which he had reported some time ago, but which he thought of sufficient importance in connection with the present case to recall. A man came to him, saying that he had a peculiar condition of the skin of his face over the parotid region; that whenever he chewed anything, particularly anything which required a great deal of chewing, a peculiar secretion appeared on this portion of his face. A distinct scar could be seen over the region, and on questioning the patient it was revealed that he had had an abscess in the region of the parotid gland which had been opened. The buccal surface was then explored, and on passing the probe into the orifice of Steno's duct, a drop of pus was exuded. After persistent dilatation of the duct, for a short time the secretion gradually disappeared. It appeared that the duct had been interfered with in some manner by an operation on that portion of the face—probably in opening an abscess—and that the saliva had by some means found its way into the sweat glands and thus appeared on the face. He thought that the case might be of interest, because of its bearing upon the incision made for the operation under consideration. He added that, in conversation recently, the opinion was expressed that the anterior incision was the better for operation on only a branch of the nerve; in view of the present case, he thought the posterior incision the better.

DR. KEEN, in closing the discussion, remarked that with reference to the question asked by Dr. Tiffany, as to why the infraorbital nerve had been exsected, he would state that the chief difficulty previous to that time was the convulsive attacks, associated with which there was some pain, and it was in the hope of securing relief from these difficulties that the operation was performed. The speaker had not, however, seen the patient previous to the performance of that operation.

With reference to the point at which the nerve crosses the chasm between the stylo-mastoid foramen and the parotid gland, as inquired by Dr. Prewitt, the speaker replied that there is a great deal of difference in this regard in different individuals. It was this difference, and the consequent difficulty attending its discovery by other means, that prompted the speaker to make use of the electric current. In using this method, he had found that the moisture of the region under operation was so conductive of the current that it was only when an exceedingly weak current was employed that the exact seat of the nerve could be positively determined.

In regard to the propriety of stretching only a branch or the entire nerve-trunk in cases of spasm limited to the muscles of a part of the face, as in blepharospasm, etc., he expressed preference for the former method. For this purpose Hüter's method would be preferable, because it reaches the nerve after its bifurcation. The upper branch may then be stretched for affections about the orbital region, and the lower branch in affections of the lower portions of the face.

The case reported by Dr. Roberts reminded him of one that had been reported in which there was, just at the moment of stretching the nerve, a gush of tears from the eye of the affected side. This sudden and peculiar secretion might possibly be allied to the secretion of sweat in Dr. Roberts's case, though he could give no physiological explanation of either.

To Dr. Watson's question, as to what effect stretching has on a nerve, the speaker replied that he supposed it was largely a mechanical disturbance of the nerve structures. A great part of it is probably also due to the physiological rest which is secured to the muscles by the disturbance of the function of the nerves; it breaks up a vicious habit. It is further probable that the nutrition of the nerve is affected to a great extent.

The relief afforded in the case reported, not only to the facial spasm, but also to the right side and leg, was a matter of as great surprise to him as it was to Dr. Watson.

In conclusion, he desired to call attention again to the proposition that he had made in the paper, that in cases of persistent palsy of the face, whether it would not be well to test the effect of nerve-stretching to a moderate degree to determine if this would not result in an increase of the irritability of the nerve, and partial or total relief of the palsy.

DR. C. H. MASTIN, of Mobile, then read a paper on

SUBCUTANEOUS EXTERNAL URETHROTOMY.

After a complete review of the methods of operative procedure for the relief of urethral stricture, whether by divulsion or by internal or external urethrotomy, the essayist described a method which he had devised in 1868 and employed ever since, with no reason to desire a modification of it. He agreed with Mr. Syme that there is no occasion for the usual external urethrotomy. If it is impossible to dilate the stricture, make internal urethrotomy. Where the stricture is too close to admit of dilatation, the essayist passed through it a filiform bougie by means of passing a number of these through a tube introduced down to the obstruction; then, by means of a hook passed through a minute external opening, drew down the bands and incised them. The instruments required for the operation were exhibited with each step of the operation. The results obtained

by the essayist were published in 1872. Originality was not claimed for the operation, as it was based on an old method. The essayist stated that, remembering the maxim "dilate where you can, cut where you cannot," he operated only on cases which required some operation for the evacuation of retained urine, and where it is not possible to introduce an instrument into the bladder.

In conclusion, he stated that the time required for recovery from this operation is much shorter than that required from others, all cases in his charge having recovered in from four to twelve days.

Dr. N. P. Dandridge remarked that he would have to speak of the paper on merely theoretical grounds, as he had never performed this operation. In this regard, however, he believed himself on a level with the other Fellows of the Association. In the hands of its originator the operation had certainly been a success. In following the essayist through the paper, the speaker could not agree with all the conclusions. That external urethrotomy is not required in any case, he thought, is not correct. In a case of stricture, for example, with fistulous openings, the speaker preferred external urethrotomy, as it offers much greater safety to the patient than does the internal section. He thought that internal urethrotomy in these cases should be the exception and not the rule. Making the incision on the roof of the urethra is also of advantage in the internal urethrotomy; still he thought too much stress had been laid on the dangers of an incision upon the floor of the urethra. The latter incision is sometimes of advantage, for in some cases it is in the floor that we find the greatest induration. He could but feel that a great part of the success obtained from the operation was due to the skill of the operator.

Dr. David Prince stated that he had for a number of years relied upon electricity in the treatment of strictures of the urethra. He based the effect on a belief in its ability to soften and remove new fibrous tissue in other parts. He had found in a number of cases that after its use daily for a short time, a stricture which required two hours' manipulation to overcome could be passed in five minutes.

Dr. T. J. Dunott remarked, that while the operation was doubtless suited to some cases, there were others to which he thought it would be inapplicable. Nothing had been said about cases of multiple stricture with excessive induration. He thought, further, that a great difficulty in the treatment of strictures, and an important cause of the frequency with which sections are now required, is a lack of patience on the part of the surgeon. It would be found that in most cases the stricture would yield to manipulation if more persistently employed.

Dr. Mastin concluded the discussion by stating that he desired the Fellows of the Association to try his operation, but that he could not be responsible for the results if improper instruments were used or if it were unskilfully done. If properly done with proper instruments, he knew that it would be successful, and that the time required for treatment would be much less.

Dr. J. S. Coleman, of Augusta, Ga., reported

A CASE SIMULATING ABDOMINAL PREGNANCY AT FULL TERM; LAPAROTOMY AND CÆSAREAN SECTION, AND REMOVAL OF A LIVING CHILD.

He believed this case to be unique. The patient was a colored primipara, aged twenty-four. He was called in consultation, as it was believed she had an extrauterine pregnancy. She thought herself at the end of gestation, and for three days past had suffered severe pains. The abdomen was more than ordinarily prominent. On vaginal examination he found a partial procidentia, the cervix protruding beyond the labia. After vaginal and rectal examination, and external palpation of the abdomen, he, too, was convinced of the correctness of the diagnosis, which was confirmed by several other physicians. Surgical interference was believed to be imperative, and it was thought that the sooner it was undertaken the better would be the prospects of both mother and child.

The various steps of the operation were then narrated in detail. Death occurred on the eighth day from septicæmia. The autopsy revealed pus along the sutures, the uterine wound ununited and gaping.

He not only considered an operation imperative, but thought the one employed the most suitable to the circumstances.

Dr. J. R. Weist thought that, in all probability, the use of the sound would have established the diagnosis. Had the case been one of extrauterine pregnancy, the muscular tissue of the body of the uterus would not have been greatly developed, therefore any contractions induced by the sound would have hardly endangered a rupture of the fœtal cyst.

In a case of uterine pregnancy of his own, in which a successful laparotomy was made at full term, the cervix was two and a half inches long, and the canal, which was large enough at the external os to admit the finger, gradually narrowed until it became very small at the internal os. Before he saw the patient, the attending physician had not only introduced the sound, but after thoroughly opening the cervix with Barnes's dilators, had introduced the finger, and completely explored the interior of the uterus without exciting contractions of either the uterus or abdominal walls sufficient to threaten the integrity of the fœtal sac.

Dr. Coleman's patient was evidently in a bad condition when first seen; her state must have been worse when the operation was performed, four days later; therefore a successful issue of it was hardly to have been expected, it being well settled that long delay in operating after the commencement of labor greatly increases the risk of opening the uterus. Had it been known that the case was one of intrauterine pregnancy, the necessity of abdominal delivery would still have been apparent, because of the impossibility of sufficiently dilating the cervix of the character described to allow the passage of a child unmutilated, weighing seven or eight pounds; and as this condition of the cervix made laparoelytrotomy impossible, the mistake in diagnosis was one involving no additional risk to the patient.

The operations possible in the case were the classic Cæsarean section—this operation as modified by Cohnstein, Frank, Kehrer, or Sänger, the Porro, and the Porro-Müller. The first is very rarely, if ever, performed at the present day. The abdominal and uterine incisions may be the same, but the thorough cleansing of the abdominal and uterine cavities, the use of antiseptics, the closure of the wound in the uterus with sutures, and the drainage of the abdomen and uterus greatly change its

character. Yet all these improvements have hardly diminished the fatality of the operation. This ill-success, while it has been increased, no doubt, by delaying the operation, must depend in a great measure upon something else.

So far as he knew, the operation proposed by Cohnstein—opening the abdomen in the usual way, turning out the entire uterus, making pressure on the aorta to check the loss of blood, opening the posterior wall of the uterus vertically, emptying the uterus and passing a drainage tube through the Douglas cul-de-sac and vagina—has not been tried in practice.

Frank's method consists, after carefully disinfecting the abdomen and vagina, of turning out the uterus entire through the abdominal wall, incising it vertically, commencing low down in the vesico-uterine excavation; extracting the fœtus and secundines; washing the front of the uterus, its interior and the vagina, with a five per cent. carbolic acid solution; passing a large drainage tube through the abdominal and uterine wounds, and out through the vagina; suturing the uterus above the tube with strong catgut; drawing the round ligaments together above the uterine wound, and securing them with Czerny's sutures, so as to close over and separate from the abdominal cavity the vesico-uterine pouch, which is to be drained by three tubes—"one utero-vaginal, one preuterine, and a third along the uterine wound to the top of the pavilion." Frank has operated by this method twice, losing his first patient, who died of shock in ten hours, and saving the second.

Kehrer opens the abdomen in the usual way, incises the uterus transversely between the insertions of the round ligaments, and closes the wound in the uterus by deeper, and a large number of superficial sutures of carbolized silk; Listerism is practised during the operation. Kehrer has done the operation four times, saving two patients and losing two. One died of septic peritonitis in fifty-three hours, the other died of septicæmia in five days.

In Sänger's operation, which, so far as it has been tried, promises to reduce greatly the mortality in these unfortunate cases, the abdominal incision is made as usual, the membranes are ruptured through the vagina, the uterus is lifted out of the abdomen if practicable, and incised vertically; great care is practised to prevent the entrance into the abdomen of blood or other fluids, and to prevent hemorrhage, a utero-vaginal drainage tube is introduced after the uterus is emptied and contracted, the wound in this organ is closed by turning the edges of the peritoneum in over the muscular layer, and deep-seated stitches of silver wire or silk inserted so as to penetrate the peritoneum and pass nearly through the muscular layer.

He then described in detail the method of closing the wound and the advantages afforded by the method. Sänger's operation has been performed in Germany eleven times with two deaths, all the children being saved—a remarkable result. So far as the speaker knew, the operation has been performed only four times in this country, once by himself, all the women having been lost. Adding these results to those of Germany, the operation stands with sixty per cent. of recoveries.

Porro's operation is too well known to require extended description. Some consider it the simplest and safest method of performing the Cæsarean section; by others, it is considered a mutilation. The latter position is hardly defensible, as the loss to the world of other children from mothers demanding the operation is slight, while it is certainly a cruelty to expose a woman to the danger of a rupture of the uterus in the event of another pregnancy, or to that of a second Cæsarean section.

The mortality of Porro's operation, although less than that of Cæsarean section as it is usually performed, is greater than that of Sänger's operation. According to the statistics prepared by Dr. Clement Godson, the mortality of the former is 56 per per cent., three times as great as that of the Sänger in Germany, and 16 per cent. greater than when the fatal cases of the United States are added.

The child is entitled to some consideration, and its chances for life are less in the Porro operation than in the older methods of abdominal delivery.

As to the method of closing the uterine wound, statistics show that catgut cannot be depended upon; the facility with which it can be absorbed is a disadvantage, for it may absorb too quickly and permit gaping of the wound, and when it holds well it cuts the tissues. After the fœtus is extracted the uterus generally contracts with much energy, and the incision contracts a great deal. The edges of the wound may be well in contact in the deeper portion, while the superficial portions will turn outward and may leave a gap between the edges. Post-mortem examinations show that in a few days, as in Dr. Coleman's case, very often the wound is open along its whole extent, and in its entire thickness, the sutures having cut through the tissues, and the edges of the wound are bathed in blood or pus. It is this opening of the uterine wound by the contractions and relaxations of the uterus that leads to the great mortality after Cæsarean section when performed by the old methods. The capability of the peritoneum to unite readily when the surfaces are held in contact is utilized in Sänger's method and in the few post-mortem examinations that surgeons have had the opportunity to make after it, the uterine wound has generally been found closed and united along the peritoneal edge.

In the case operated on by the speaker, the woman died at the end of forty-eight hours of peritonitis (the child is still living), but the case was a complicated one. As already stated, natural delivery was impossible, because of a fibroma developed in the posterior wall of the body and cervix, which filled the entire pelvis. Two very thin-walled cysts attached to the peritoneal surface of the uterus were removed, their pedicles being secured by silk ligature. The omentum was contracted into a thick nodular mass, indicating the existence of malignant disease.

At the autopsy there was about a pint of reddish serum in the abdominal cavity, but no blood-clots. The uterine wound remained closed, complete union having apparently taken place between the inverted peritoneal surfaces. This result, the speaker considered, demonstrated the value of Sänger's method of closing the uterine wound, as it will be remembered that in this case, owing to the interference of the tumor, the wound gaped widely, even when the uterus was well contracted.

In conclusion, he asked for an explanation of the low rate of mortality attending Cæsarean section, as com-

pared with the present, in the early history of the operation in this country.

CLOSING BUSINESS.

DR. J. EWING MEARS presented an amendment to the Constitution providing for the appointment annually of a committee of three to aid the President in preparing a programme for the ensuing session.

THE PRESIDENT, DR. GUNN, then thanked the Fellows of the Association for their support during the meeting, and congratulated them upon the high character of the papers that had been presented.

DR. MASTIN moved a vote of thanks to the President for the efficient manner in which he had presided over the deliberations. Adopted.

Adjourned.

NEWS ITEMS.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY ON THE EXCLUSION OF ITS DELEGATES FROM THE AMERICAN MEDICAL ASSOCIATION.—A special meeting of the Philadelphia County Medical Society was held on Tuesday evening last to receive the report of its delegates to the American Medical Association. The President, Dr. R. J. Levis, was in the Chair and the attendance of members was very large.

The report of the delegation was a plain recital of the events connected with the final exclusion of the delegation from the last session of the American Medical Association. It stated that a protest, by whom signed they had been unable to learn, had been filed against the admission of the delegation. That this protest was referred to the Judicial Council of the American Medical Association, which, after hearing evidence in the case, decided to admit the delegation. This favorable report and decision were withheld from the Convention by certain of its officials, in contravention of the by-laws of the Association, and the case was reopened on the following day, the Judicial Council having decided to withdraw the report and to hear additional testimony. At both hearings the report charges that the members of the delegation were treated unfairly, and were not allowed to hear the testimony which was presented against their admission. The result of the second deliberation of the Judicial Council was the exclusion of the delegation from the Convention, on the ground that the members of the delegation had been illegally chosen.

On motion, the report was received.

Dr. S. R. Knight rose to present what he claimed was a minority report, signed by himself and Dr. Wm. T. Taylor. Its admission was urged by Drs. Wm. H. Pancoast, H. Y. Evans, P. D. Keyser, F. Woodbury, and W. Welsh. Its acceptance as a minority report was objected to on the ground that its signers had failed or refused to attend every meeting of the delegation both in Philadelphia and in St. Louis; that they had not attended at St. Louis as delegates from the Philadelphia County Medical Society; that they had openly denied the right of the delegation to represent the Society, and that they had not exercised the right of a minority by attending the meeting at which the report was adopted, or of stating their objections to it, or of voting against it. The Society therefore declined to receive the paper signed by them as a minority report, but invited Dr. Knight to read it as a personal statement for the information of the meeting, but this he refused to do.

Dr. D. Hayes Agnew then offered the following resolutions:

Resolved, That the Philadelphia County Medical Society has learned with surprise of the action of the American Medical Association at St. Louis in excluding the duly elected delegates from this Society.

Resolved, That, as the subject has been referred back to this Society for final action, the legality of said election is hereby reaffirmed, and that while it would be perfectly right for the delegates to vindicate the validity of their election by a resort to legal measures, yet, in the interest of peace, such action is not urged.

Resolved, That in excluding the delegates from this Society the Judicial Council have violated the plain rules of evidence and of justice.

These resolutions were adopted by a *viva voce* vote.

Dr. Pepper then moved that the report of the delegation be adopted as the views of the Society.

This resolution was adopted, and a division being called for, the vote stood 137 yeas to 24 nays.

It was then ordered that the Secretary forward copies of the report, with the resolutions offered by Dr. Agnew, to the officers and members of the Judicial Council of the American Medical Association, and to the officers and permanent members of the Medical Society of the State of Pennsylvania.

Dr. H. C. Wood moved that the action of the delegates at St. Louis be approved, and that they receive the thanks of the Philadelphia County Medical Society Adopted.

The meeting then adjourned.

A NEW LABORATORY FOR THE UNIVERSITY OF THE CITY OF NEW YORK.—The Medical Department of the University of the City of New York, has just received a gift of $100,000 for the construction and maintenance of a laboratory building, to be known as the Loomis Laboratory. The gentleman who has made the gift wishes that for the present his name should not be made public. Land adjoining the property of the College has already been purchased, and it is hoped that the new building will be ready for occupation next year.

COLLEGE OF PHYSICIANS AND SURGEONS.—At the Annual Commencement of the College of Physicians and Surgeons of New York, on May 13, the Degree of Doctor of Medicine was conferred upon ninety-six candidates.

THE NEUROLOGICAL REVIEW.—The first number of a new monthly journal, thus entitled, has just been issued. It contains, among other interesting matter, an elaborate "Study of Epilepsy," by the Editor, Dr. J. S. Jewell. The *Review* is published by Rand, McNally & Co., of Chicago.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

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ORIGINAL LECTURES.

THE PRESENT STATUS OF ABDOMINAL SURGERY.

The Address in Surgery delivered before the American Medical Association, May 5, 1886.

BY N. SENN, M.D.,

OF MILWAUKEE, WIS.

(Concluded from page 567.)

SURGERY OF THE GALL-BLADDER.

RECENTLY the gall-bladder has been made a favorite object of operative treatment. As patients suffering from affections of this organ usually come under the treatment of the physician at first, a brief consideration of the improvements in the surgical treatment of affections of this organ will be of great interest to every physician. It requires no argument to show that surgical treatment should not be resorted to as an *ultimum refugium*, but to secure a good result the operation, when required, should be done before the patient's strength is too much reduced. An early operation is the more justifiable as statistics have shown that operations upon the gall-bladder are among the safest and most satisfactory within the domain of abdominal surgery.

Although the feasibility of the surgical treatment of affections of the gall-bladder was indicated by J. L. Petit and Thudichum, it was applied in practice almost simultaneously by Sims and Kocher in 1878. Sims completed the operation at one sitting; the patient died on the eighth day. Kocher made a preliminary operation by stitching the gall-bladder to the margins of the wound, so as to secure adhesions between it and the peritoneum before resorting to incision and drainage. The patient recovered. In the absence of positive signs and symptoms indicative of biliary obstruction, it is exceedingly important to resort to a most careful examination in determining the existence of an over-distended gall-bladder. The anatomical location of the tumor, its relation to surrounding organs, and its connection with the under surface of the liver, are important elements in the differential diagnosis. Mr. Taylor, of Birmingham, who had ample opportunity to examine cases of enlargement of the gall-bladder with Mr. Tait, describes a diagnostic line which appears to be of great value in determining the existence or absence of a distended gall-bladder: "This line is to be traced from the normal position of the larger end of the gall-bladder near the tip of the cartilage of the tenth rib on the right side, . . . to the opposite side of the abdomen, crossing the middle line slightly below the umbilicus. In the direction of this line a distended gall-bladder will naturally lie." In view of the comparative safety of an exploratory operation, this should be preferred to the more doubtful expedients of exploratory puncture and sounding of the gall-bladder in all cases in which a positive diagnosis cannot be made without resorting to these latter diagnostic measures, which cannot be said to be free from danger or to furnish sufficient information upon which to base a positive diagnosis.

The surgical treatment of the diseases of the gall-bladder at present includes three distinct and well-defined methods of operation, viz.: 1. Cholecystotomy with or without the formation of an external biliary fistula. 2. Cholecystectomy, or excision of the gall-bladder. 3. Duodeno-cholecystotomy, or the formation of a new communication between the gall-bladder and the duodenum.

1. *Cholecystotomy.* At the present time the majority of operators are in favor of finishing the operation at one sitting. According to Keen, the incision should be made, as a rule, over the centre of the tumor and parallel to the costal arch. It should be at least three inches in length and enlarged, if need be, afterward. All hemorrhage must be carefully arrested before opening the peritoneum. Through this opening the gall-bladder and common duct are explored by the introduction of two fingers, or, if necessary, the whole hand, to ascertain the condition of the swelling, the relations to surrounding organs, and, so far as possible, the character of the contents. If a calculus is found in the common duct, an attempt should be made to push it into the duodenum; if this cannot be accomplished, it should be forced back into the gall-bladder. If no stone is found present, a distended gall-bladder alone is a sufficient indication for incision and drainage. The evacuation of the gall-bladder is done by aspiration, and its wall is subsequently cut to the extent of an inch or more. After incision, care must be exercised to prevent escape of bile into the peritoneal cavity. The margins of the visceral wound are carefully stitched to the abdominal wound, and the cavity of the gall-bladder and its duct emptied of their contents. Immediate closure of the gall-bladder, after removal of its contents, was suggested first by Spencer Wells as appropriate in cases in which the surgeon can satisfy himself of the patency of the biliary passages.

This suggestion was carried out by Mr. Meredith, of London, who closed the incision in the gall-bladder after the extraction of three calculi, by means of a fine silk thread, introduced as a continuous suture, and inverting the edges of the peritoneal coat. The abdominal incision was closed in the usual way, no drainage being employed. This patient died in forty-eight hours, with suppression of urine. At the autopsy the incision in the gall-bladder was found securely closed and quite impervious to fluid. He remarks on this method of operating as follows: "As regards the method adopted, of dispensing with drainage, I do not feel inclined to recommend it, although there appears to me no reason why it should not succeed in a favorable case, provided, always, that it was possible to ascertain that no obstruction remained in the ducts. This, of course, constitutes the chief difficulty, and may be impossible; so that, on the whole, I believe that the more usual plan of drain-

ing the gall-bladder should be preferred—at all events in the majority of instances." Mr. Tait has expressed a similar opinion on this subject. He states, distinctly, that it cannot always be ascertained with certainty that the common duct is patent, and if this should not be the case the periodical contractions of the gall-bladder might cause a giving way of the sutures and extravasation of bile into the peritoneal cavity.

That these fears are not without foundation is well illustrated by the case of cholecystotomy reported by Dr. Parkes. The case reported by Dr. Bernays during the last year, on the other hand, demonstrates the advantage of suturing the gall-bladder and dispensing with drainage, as the patient recovered in a remarkably short time, without any untoward symptoms and without the inconveniences of a temporary fistula. As in the majority of cases the safety of the patient is enhanced by the formation of an external biliary fistula, which also enables the surgeon subsequently to treat the interior of the gall-bladder and the bile ducts, should this be required, it is evident that immediate closure of the gall-bladder has only a limited sphere of usefulness, and is applicable only in the exceptional cases in which the permeability of the biliary passages can be demonstrated at the time of operation. As in all other abdominal operations, the results obtained by Mr. Tait in the surgical treatment of diseases of the gall-bladder stand unsurpassed and preëminent. He has performed cholecystotomy 21 times, with so many recoveries. From different sources, Dr. McF. Gaston has collected 33 cases of cholecystotomy, with a mortality of 27.7 per cent., 9 having died.

2. *Cholecystectomy.* Ligation of the cystic duct and extirpation of the gall-bladder was introduced as a substitute for cholecystotomy by Langenbuch. He claims for his operation that it is not attended by any of the risks incident to incision and evacuation of the gall-bladder, and that in cases of recoveries from the operation it prevents the possibility of a recurrence of the disease, and that the possibilities of a permanent biliary fistula are never incurred. He has performed the operation five times, with two deaths: one from acute œdema of the brain, and the other from an ulcerous perforation of the cystic duct. Two successful cases are reported by Thiriar, and one by Corvoisier.

Mr. Tait prefers cholecystotomy to cholecystectomy, as being an easier and safer operation; and, in case a recurrence of the disease makes a second operation necessary, he claims that the first operation makes the second easier. It can be done readily and without any danger through the adherent cicatrix without any risk of opening the peritoneal cavity.

3. *Duodeno-cholecystotomy.* This term signifies an operation for uniting the gall-bladder and duodenum, with an opening between them. It has been suggested as a surgical procedure almost simultaneously by Harley and Gaston in cases of impermeability of the common bile duct, while the cystic duct is permeable, or may be rendered so by surgical means. In regard to such an operation, Harley says: "The triumph of modern surgery would be to establish an artificial fistula between the gall-bladder and the duodenum. For then not alone would the pent-up bile be removed, but the disturbances arising from the non-admittance of bile into the intestine, likewise, would be at the same time overcome. I am not quite sure if, in these days of antiseptic surgery, the operation is not practicable; for I can see no reason why the adjacent surfaces of the gall-bladder and duodenum should not be eroded by potassa fusa and speedily stitched together." Dr. Gaston has made this subject an object of patient and persevering experimentation. In summing up his results, he says: "Out of fifteen subjects, only three dogs finally survived the primary operation; yet it will be observed that the results of attachment of the gall-bladder to the duodenum and firm union by adhesive inflammation between their surfaces and the formation of a fistulous opening through this septum, which affords a communication between their cavities."

The feasibility of this operation has been demonstrated on animals, but its adoption in practice as a legitimate justifiable operation can only be expected after a more safe and expedient method of accomplishing the object has been devised, and its applicability has been demonstrated more satisfactorily on animals.

INJURIES AND SURGICAL AFFECTIONS OF THE LIVER.

The idea of treating injuries and some of the diseases of the liver by surgical means is not a new one as Ceccherelli credits his countryman Zambeccari with having made experiments on animals with such a view as early as 1680. Experiments and clinical observation have shown that injuries of the liver under favorable circumstances are not only repaired, but that in some unaccountable and as yet unexplained manner, loss of substance is replaced by regeneration. Thus Ceccherelli reports, among a number of operations, a very interesting case in which he performed excision of a portion of the liver with the gall-bladder, in a large hunting dog, with Paquelin's cautery. The operation was bloodless, and the animal recovered without any untoward symptom. The animal remained perfectly well, and was killed 226 days after the operation. The autopsy showed a cicatrix in the liver at the site of the operation, and that the organ had been restored to its former shape and size, as was ascertained by comparison with the liver of a dog of the same size. From the results of his experiments, he advises that in no case should more than one-third of the size of the liver be excised. To prevent or arrest hemorrhage, he prefers the actual cautery to the elastic ligature and pressure forceps.

1. *Wounds.* That gunshot wounds of the liver are not necessarily fatal even if no active surgical treatment is resorted to, has been well established by a number of cases in which the bullet was found encysted in the organ, without having given rise to any symptoms during life, years after the injury had been received. Thus Bilguer found a bullet encysted in the liver four months after the accident. Guthrie, Paroisse, and Thompson have each reported a case in which, on autopsy, the bullet was found in the gall-bladder, the patient having died from other affections. These cases and experiments are only mentioned with a purpose to show that, with proper surgical treatment, injuries of the liver would not be attended by such great mortality as has been the case on the expectant plan of treatment. The two great dangers attending visceral injury of the liver are hemorrhage and extravasation of bile into the peritoneal cavity. In subcutaneous lacerations of the liver, if the symptoms are such as to indicate internal

hemorrhage of a serious nature, the only chance to save life would be to perform abdominal section and to control the hemorrhage by direct measures, as without such interference the patient would be almost certain to die of peritonitis, even if he recovered from the effects of the hemorrhage. From the anatomical structure of the liver it is easy to conceive that the arrest of hemorrhage from this organ is not an easy task. Ligation is out of question. If the wound has a regular outline and involves the border of the liver, accurate coaptation of the wound surfaces, with catgut sutures traversing the entire thickness of the organ, would offer a fair chance of controlling the hemorrhage. The needle should be round and not quite as large as the thread of the catgut; so that the punctures will not give rise to additional sources of hemorrhage. If the wound is irregular, or located in such a manner as to render suturing impossible, the actual cautery can be used to advantage. If this fails to control the hemorrhage, we have still at our disposal one of the most reliable and safest means of arresting parenchymatous, or venous hemorrhage in the aseptic tampon—a tampon made of iodoform gauze. If an aseptic tampon is to be successful in arresting hemorrhage, an aseptic condition of the wound is indispensable.

In subcutaneous and consequently aseptic wounds of the liver, rendered accessible to treatment with the tampon by abdominal section, there would be no objection in plugging the wound permanently, closing the abdominal cavity, with the exception of an opening for a drainage tube, as near as possible at a point opposite to the visceral wound. Drainage in these cases is required on account of possible extravasation of bile taking place by filtration through the tampon. In the course of time the aseptic foreign material would become encysted. The use of the tampon for arresting hemorrhage from the liver was advised by Thesen, as early as 1795, and more recently by Brotherson, Demme, and Volkmann. In penetrating wounds of the abdomen with visceral lesion of the liver the same means may be resorted to in arresting hemorrhage and guarding against extravasation. In incised wounds suturing, if possible; in gunshot wounds, the aseptic tampon with drainage. As prolapsed portions of the liver are also usually contused, reposition, as a rule, is contraindicated, and such portions are better removed with a Paquelin's cautery.

As aseptic foreign bodies may become encysted in the liver as well as in other parts of the body, no additional injury should be inflicted in order to effect their removal. All such attempts are attended by an increase of hemorrhage and, from the friable nature of the substance of the liver unless the greatest care is exercised, an increase of traumatism is inevitable. On these accounts a faithful effort should be made to secure an aseptic condition of the wound, so as to obtain the most favorable condition for the healing of the wound, and the formation of a capsule around the foreign body in all cases in which extraction cannot be readily accomplished.

2. *Abscess and echinococcus cysts.* The treatment of abscess of the liver and echinococcus cysts by abdominal section is based on the same principles which embrace all the precautions which are necessary to obtain adhesion between the parietal and visceral peritoneum at the site of the incision. The recognized plan of treatment consists of making an exploratory incision through the abdominal wall over the most prominent part of the swelling, to ascertain the presence or absence of adhesion. If the peritoneal cavity is found obliterated, the operation is finished at once by incising and draining the abscess or cyst. If, on the other hand, no adhesions are found, the surface of the liver is exposed and the wound packed with iodoform gauze and an antiseptic dressing applied, which is allowed to remain for four to five days until adhesions have formed, when a second operation is made to evacuate the contents of the swelling by incision. If the abscess or cyst is centrally located, and a considerable portion of healthy liver tissue is interposed between it and the external surface of the organ, it is advisable to make the incision with Paquelin's cautery so as to prevent unnecessary or dangerous loss of blood. Echinococcus cysts are frequently located upon the upper surface of the liver and, on this account, are inaccessible to treatment by abdominal section. In such cases the practice of attacking them through an opening in the chest, as has been successfully done by Israel and Volkmann, recommends itself as the safest and most expedient operation.

SURGERY OF THE PANCREAS.

The surgery of the pancreas belongs to the future. The physiological function of this organ requires further investigation for a more intelligible interpretation of symptoms in disease. The only pathological conditions of the pancreas which have been made an object of surgical treatment are cysts. A number of successful cases of this kind are on record in which a permanent cure followed the formation of an external pancreatic fistula. In only one case did the fistula remain permanently, in all the rest the secretion diminished gradually and ceased definitely with the healing of the fistula. It is to be hoped that the symptomatology of different lesions of the pancreas will be made a special object of careful study and investigation, so that in the future we may be able to recognize and classify the different diseases of this remote organ during life, so that we may be able to resort to laparotomy in affections which may be amenable to direct surgical treatment.

LAPARONEPHRECTOMY.

Although statistics have shown that lumbar nephrectomy is a much safer operation than laparonephrectomy, the latter has a legitimate sphere in cases of large tumors of the kidney which cannot be removed through a lumbar incision. This operation also enables us to examine the opposite kidney at the time of operation, an advantage which is considered of sufficient importance by Thornton to give this operation the preference in all cases in which nephrectomy is intended.

Bruntzel has lately removed successfully a fibroma of the capsule with the entire kidney weighing thirty-seven and one-half pounds by abdominal section in a woman thirty-three years of age. The tumor had attained this enormous size in five years. It reached from the ensiform cartilage to the symphysis pubis distending the abdomen equally in all directions. Tympanitic resonance on percussion on both sides of the tumor. Palpation and exploratory puncture showed that the structure of the tumor was firm and solid. An incision was made the entire length of the linea alba. On opening the abdomen the tumor came in view covered by

peritoneum which was divided over the whole length of the tumor. The tumor was enucleated with the kidney, and the pedicle, which was composed of the renal vessels, was tied and after cutting dropped into the abdomen. The cavity was drained toward the lumbar region and the divided peritoneum sutured. Notwithstanding that a fecal fistula formed subsequently, the recovery of the patient was complete and permanent.

By a similar operation Hicquet extirpated successfully a retroperitoneal sarcoma which was intimately connected with the kidney in a girl six years of age. In this case the renal artery and vein were tied separately. For the extirpation of malignant tumors of the kidney, or its immediate vicinity, laparonephrectomy affords a better chance for a thorough removal of diseased tissue and for controlling hemorrhage, and on these accounts should be preferred to the lumbar operation. Whenever practicable, the integrity of the peritoneal cavity should be restored by suturing, and, if required, drainage established in the lumbar region.

LAPARONEPHROTOMY.

This operation is indicated in all cases of hydronephrosis and pyonephrosis in which, from the size of the swelling or on account of adhesions, lumbar nephrectomy cannot be performed. It is also preferable to the lumbar operation, where a positive diagnosis cannot be made and where, between these diseased conditions and other fluctuating tumors of the abdomen, extirpation of a hydronephrotic or pyonephrotic kidney is contraindicated by disease of the opposite kidney or the general debility of the patient.

TUMORS OF OMENTUM MAJUS.

Tumors of the large omentum give rise early to pain or a sensation of discomfort, by causing traction upon the transverse colon by their weight. As a rule, tumors of this structure are found in the umbilical region, and have no connection with adjacent organs, hence they are movable in all directions, except downward. The differential diagnosis between omental and intestinal tumors in the same region rests upon the complexus of symptoms caused by the latter group, from their anatomical location interfering more or less with the functions of the intestinal tract. In the examination of an omental tumor it must be remembered that it is in immediate contact with the anterior abdominal wall, consequently its presence will be indicated by an area of dulness on percussion corresponding to the size of the tumor. If the area of dulness remains permanent and unchangeable, it would be an indication that the tumor has become adherent, or that the tumor is not omental but parietal. Primary malignant disease of the omentum, if it could be recognized early, would offer most favorable conditions for successful radical extirpation by abdominal section. Cystic tumors and echinococcus cysts are most favorably located for successful treatment by abdominal section and drainage.

TUMORS OF MESENTERY.

Aggressive surgery is gradually, but surely, encroaching upon the most remote tissues within the abdominal cavity, thus extending the benefit to be derived from direct local treatment to the most distant pathological conditions.

A few years ago, M. Tillaux extirpated successfully from the mesentery a glandular tumor, which had undergone degenerative changes. The patient was a man, aged thirty-one years, in excellent health, who was taken suddenly ill without apparent cause. The most prominent symptom was a violent pain in the abdomen, which compelled him to remain immovable for about fifteen minutes. The pain returned after a short interval with unmodified intensity. The following day the suffering continued in spite of anodynes, which were given freely. He was now removed to the hospital, where, on examination, a round tumor was found in the abdomen, which was thought to be a floating kidney. The patient suffered with obstinate constipation and pain for twenty-five days, when the pain became paroxysmal, and always aggravated when he attempted to take food. He only obtained relief when he sat on his bed bent double, with his head resting on his knees. At this time M. Millard diagnosticated chronic invagination of the intestines. About thirty-eight days from the beginning of the illness, abdominal section was performed by Tillaux. The abdomen was opened sufficiently to permit the introduction of the hand. Inserting the hand, he found a round tumor about the size of the head of a fœtus at term, situated upon the right side of the mesentery which fastened the intestine to the spinal column. The tumor was recognized as a cyst of the mesentery. This was punctured, and subsequently incised, and evacuated from it caseous matter resembling thick cream. Catgut ligatures were then thrown around the base of it, tied, and then the whole of the tumor cut off above them. The pedicle was touched with a strong solution of carbolic acid, the organs returned, and the wound closed. The pain ceased promptly, and the recovery of the patient was complete. The histological examination of the tumor showed it to be composed of a lymphatic gland containing the products of caseous degeneration.

This case illustrates that it is comparatively safe to remove tumors of the mesentery by ligation or enucleation, while, on the other hand, extirpation of tumors, requiring for their removal the excision of a corresponding portion of the mesentery, is a vastly more serious and difficult operation.

Wölffler reports a case of this kind. In this case a fibroma of the mesentery, weighing one and a half pounds, was removed with the mesentery, and a corresponding portion of the intestine 115 cm. in length. The ends of the bowel were brought together with sutures. The patient survived the operation only twenty-four hours.

Wölffler suggests that in the future enterectomy, in connection with extirpation of tumors of the mesentery, should be followed by enterorrhaphy only in cases in which the site of operation involves the movable portion of the bowel, as the cæcum, transverse colon, and sigmoid flexure, while in other localities no attempt should be made to unite the resected bowel, but the efforts of the surgeon should cease with the formation of an artificial anus. That this advice is not tenable in all cases becomes apparent, as, for instance, if the tumor is located in the mesentery of the upper portion of the intestinal canal, the physiological exclusion of such a large intestinal surface would be incompatible with a proper maintenance of digestion, assimilation, and nutrition. My experience on animals in extirpating the

pancreas has satisfied me of the tolerance of the small intestine to even extensive detachment of the mesentery. If it can be accomplished without producing mechanical obstruction of the bowel by flexion, it would be advantageous to approximate the vascular supply by suturing the mesenteric wound. This course also suggests itself as an important measure in preventing a defect in the mesentery which might subsequently become a source of internal strangulation.

Hamerton has collected eight operations done for extirpation of tumors of the mesentery, of which only one appears to have recovered. This case was operated upon by Spencer Wells, who removed a tumor the size of an adult head. A microscopical examination showed that the tumor was a spindle-celled sarcoma. In a recent communication in the *Lancet* Mr. Wells informs us that the patient has remained free from a recurrence of the disease, and remains otherwise in good health since the date of operation, June, 1882. In all benign tumors of the mesentery enucleation should be preferred to excision, so as to preserve intact as much as possible of the mesenteric circulation.

There can be no question that mesenteric detachment is more likely to be followed by gangrene of the bowel if enterectomy is performed, than when the continuity of the intestinal tube is preserved.

RETROPERITONEAL TUMORS.

The extirpation of a retroperitoneal tumor by laparotomy must be looked upon as one of the most serious and difficult operations in surgery. Aside from the unusual difficulties encountered in arriving at correct conclusions as to the exact seat and nature of tumors in the retroperitoneal space, the technique for their removal remains to be improved by future research and experimentation.

Dr. Homans has reported two cases of retroperitoneal tumors removed by abdominal section. In the first case the operation was performed for a myxo-lipoma in a man thirty-nine years of age; the tumor had been growing for two and a half years. The second patient was a woman, sixty years of age, suffering from a lipoma. The tumor was located in both cases on the right side. In the first case another tumor was found in front and toward the left of the spine, which could not be removed. Both patients died soon after the operation. In the first case the mesentery of the ascending colon was detached to gain access to the tumor. Homans very properly warns against such extensive deprivations of vascular supply to the bowel in thi particular locality. He advises, under such circumstances, either enterectomy and enterorrhaphy, or the formation of a preternatural anus. It would seem that in some of these cases, in which the tumor is of moderate size, the operation would be easier, and the results better, if a lateral abdominal incision were made without opening the peritoneal cavity. In approaching the tumor through the peritoneal cavity after dividing the overlying peritoneum, the enucleation of the tumor should be accomplished by the use of blunt instruments, and with special care to preserve the integrity of the mesenteric vessel, so as to avoid, if possible, the necessity of enterectomy and enterorrhaphy.

CONCLUSION.

The foregoing fragmentary and imperfect sketch of the present status of abdominal surgery will, I hope, at least serve the purpose of impressing upon you the importance and magnitude of this, the most recent, department of surgery. I have attempted to allude to the defects as well as the advances, the failures as well as the triumphs. The results already obtained by the surgical treatment of injuries and diseases of the abdominal organs are indeed gratifying, and bear abundant evidence of the good and faithful work which has been accomplished. The greatest achievements of abdominal surgery, however, necessarily belong to the future. This new territory, so recently acquired by the surgeon, has been only partially explored. New operations will be devised, and old ones improved. Diagnosis will be made more certain by a careful study of symptoms, and a more thorough knowledge of the physiology and pathology of the abdominal organs. Experimental research will clear up many obscure points in the causation of disease which will lead to new and improved methods of treatment. With all these prospects before us, let us not remain idle. Abdominal surgery is of American birth. Let us cherish our own offspring. The world holds us responsible for its healthy growth and development. McDowell, Gross, and Sims, the distinguished fathers of abdominal surgery, have left us in charge of an important and sacred trust. Let us labor in this department honestly, unceasingly zealously, as faithful guardians of the promising infant, until it shall have attained vigorous, perfect manhood, a source of pride to its illustrious parents, a perpetual fountain of blessing to a suffering humanity, and a priceless honor to American surgery.

ORIGINAL ARTICLES.

A CASE OF AORTIC ANEURISM TREATED BY THE INSERTION OF WIRE.[1]

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THE subject of an aneurism never fails to arouse the interest of the surgeon. Happily, the progress of our art has been such that he who is thus afflicted needs, as a rule, no longer to consider himself an object of scientific interest solely, but, with at least fair prospects of a successful issue, may rely upon one or other of the methods recognized as radical in the treatment of his disease. There are cases, however, and notably those of the aorta, which are not amenable to ligation or compression, and in which despite medicinal treatment and the observance of absolute rest, a rapidly fatal result must be predicted. Such cases ought not to be forsaken without an effort to save. As our science stands to-day, we are restricted to a choice between distal ligation, galvanopuncture, and the introduction of foreign material into the sac of such aneurisms. It is to the latter method only that I now beg to direct attention. The cases of aortic aneurism in which it has been adopted are so few that the report of the following case may prove interesting if not instructive.

CASE I.—Alfred P., æt. thirty-five, colored, presented himself at the dispensary of the Medical

[1] Read before the Section of Surgery and Anatomy of the American Medical Association, May 11, 1886.

College of Ohio, and was admitted to the Good Samaritan Hospital in May, 1885. Had been a moderate drinker, but had always enjoyed good health. Had a chancroid several years ago, but had never had syphilis. In August, 1884, while pulling an oar he made a very sudden and strenuous effort, which was followed by a sharp stinging pain in the right side of chest. Pain has been constantly present since. Difficult breathing, more or less severe cough, and inability to do hard work have gradually supervened. Slight exertions are often followed by paroxysms of dyspnœa that threaten to terminate life. From the 24th of February to the 27th of April the patient was an inmate of the Cincinnati Hospital, where, according to the records, he was kept at rest and upon iodide of potassium, but without marked benefit.

Status Præsens.—Man well nourished and of good muscular development. Breathing labored, short, and frequently interrupted by spells of coughing, whereby a thick, tenacious mucus is expelled. A marked œdema of the root of the neck, and extending to the right side of the face and shoulder, is observed. Inspection of the chest reveals a conical prominence of the right side of the sternum and extending over the second and third intercostal spaces. The projection is as large as a fist, pulsates perceptibly, but presents no discoloration of the integument. On palpation a pronounced expansile pulsation is felt from below the clavicle to the fourth rib and from the right margin of the sternum to half an inch beyond the mammary line. The tumor is very soft, fluctuating, and exceedingly sensitive to pressure. Percussion elicits a dull sound. No thrill can be felt. Auscultation over the tumor reveals no adventitious sounds produced within it. The cardiac sounds are transmitted with more than ordinary clearness, and particularly is the accentuation of the aortic sound noticeable. The position of the apex beat is normal. While the patient is at rest his pulse is 100. According to the sphygmographic tracings taken by the late Dr. Keyt, the pulsation in the radials is synchronous, and the pulse-waves agree sufficiently in form. Auscultation over the right lung reveals a harsh inspiratory noise below the angle of the scapula. Coarse mucous râles are audible over both lungs.

Diagnosis.—Sacculated aneurism of the ascending aorta, with perforation of the chest-wall, unattended by atheroma or cardiac hypertrophy.

Treatment.—When the patient was admitted to the Samaritan Hospital he was placed in bed and kept as much at rest as the cough and dyspnœa would permit. His diet was greatly restricted, and twenty grains of the iodide of potassium given three times a day. For a week this treatment, with the administration of a hypodermatic injection of morphia at night, was continued with apparent benefit. The pain and dyspnœa were somewhat diminished and the pulse rate reduced to 90 per minute. No perceptible change in the aneurism occurred. The improvement in the condition of the patient was dissipated two weeks after his admission, after a severe spell of vomiting, which was followed by an increase of pain and dyspnœa and protracted epistaxis. When the irritability of the stomach had been allayed the administration of the iodide was resumed, but without marked benefit. During the third and fourth weeks of the patient's stay in the Hospital six subcutaneous injections of ergotine were made in the vicinity of the tumor, with but faint hopes of benefiting him. While no direct detriment to the diseased vessel resulted from them, they were followed by so much pain that they were discontinued.

It was at this time that Loreta, of Bologna, reported his favorable case of aneurism of the abdominal aorta, in which he had given a new and striking impetus to Moore's method of treating aneurisms which, from their position, are not remediable by ordinary surgical procedures. Recognizing the otherwise hopeless condition of the patient, and after consultation with my colleagues, Drs. Whittaker and Nickles, it was determined to insert a coil of wire into the sac, in the hope of causing its obliteration by the formation of a firm, organizable clot. The material used was flexible silver wire (which had frequently been coiled by passing it into a box of the apparent dimensions of the aneurism).

Operation.—June 13, a straight hollow needle with thumbscrew attachment was pushed into the aneurism from the right side. The needle was directed parallel to the chest-wall to avoid, so far as possible, the entrance of a coil into the lumen of the main vessel. Ninety-six inches of wire were thus introduced into the aneurismal sac without any technical difficulty. The pain experienced was very slight, and during the introduction of the first four feet of wire the pulse continued unchanged. It suddenly became almost imperceptible and very rapid. The patient complained of great faintness, and it appeared that death was imminent. After the administration of several injections of whiskey, the pulse gained in strength, and the remainder of the wire was introduced without further interruption. The end of the coil was pushed into the sac by a second piece of wire, which was withdrawn with the canula. No hemorrhage attended or followed the operation. An icebag was applied over the aneurism and an opiate administered.

On the day following the operation an amelioration of all the symptoms was noticeable. The œdema of the neck had materially subsided, the pain had diminished, the tumor was decidedly firmer in its outer portion, and the pulsation was very much less marked than before the operation. From day to day, for a period of two weeks, the condition of the patient gradually improved. The pulse rarely exceeded 80, was regular, and of fair volume. The temperature, except on the second day, was practically normal. The dyspnœa and cough were no longer distressing, and it seemed certain that the organization of a firm clot was in progress. The outer portion of the tumor had become quite firm, and fluctuation in it was no longer appreciable.

In the last days of June a change for the worse supervened—a change which coincided with increased pulsation and greater prominence of the internal segment of the tumor. The œdema of the neck, right side of the face, and right arm, became greater

than at any previous period. The right eye was completely closed. The patient now could sleep only on this side. In the hope of consolidating this part of the sac, a second operation was performed on the 5th of July, whereby ninety-eight inches of wire were inserted into the sternal portion. Considerable pain, but no distress attended this operation. The symptoms remained unchanged. The region of the tumor had become quite sensitive within three days after the operation. A distinct induration of the tissues over the tumor was perceptible, and the pulsations appeared less marked. Hopes were still entertained of material improvement, when the patient was found dead in bed on the morning of the 13th of July.

Autopsy.—Made by Dr. F. Gebler, Pathologist of the Samaritan Hospital. The body is that of a negro, well nourished, and about forty-five years of age. Post-mortem rigidity well marked. The right side of the face, neck, right arm, right side of the trunk, and the right lower extremity, are markedly œdematous. On the right side of the chest from the clavicle to the nipple is a swelling conical in form, having a base four inches in diameter. To obtain the specimen in its entirety, the right half of the anterior chest-wall was removed, together with the heart, aorta, and trachea. When the necessary incisions were made, the right pleural cavity was found filled with blood, the right lung being compressed, but not adherent.

From the anterior surface of the ascending aorta there springs an aneurismal tumor, which has a long diameter of seven, and transverse diameter of four, inches. The mouth of the tumor is an inch wide and circular. Its lower margin is one inch removed from the commencement of the vessel. In the posterior and outer part of the aneurism, where it is covered by the mediastinal layer of the pleura, is an opening a little larger than a silver dime, where the aneurism had ruptured. When the tumor was opened from behind, there was found in the upper and outer third of the sac a firm laminated clot of considerable thickness and adherent to the sac wall. The walls of the remaining portions of the aneurism were covered with a thin layer of fibrin, the interior being filled with soft coagula of recent formation. Throughout the sac of the aneurism, embedded in firm and recent clots, are numerous coils of silver wire. One of these rests just above and in close relation to one of the leaflets of the aortic valve. Near the seat of the rupture no wire is found. When the clots were removed from the sac it was found that the second and third ribs were perforated and the anterior wall of the external cavity was largely made up of the pectoral muscle, which contained about two feet of closely coiled wire. Subsequent dissection of the specimen showed that the aneurism pressed severely upon the right bronchus and the right innominate vein. Indeed, the latter could not be completely exposed without endangering the sac wall. The orifices of the large arterial trunks springing from the transverse arch were found pervious, and evidently the circulation in them during life was uninfluenced by the dilatation of the ascending part.

In a case like the one presented, comment should be directed toward the solution of four questions:

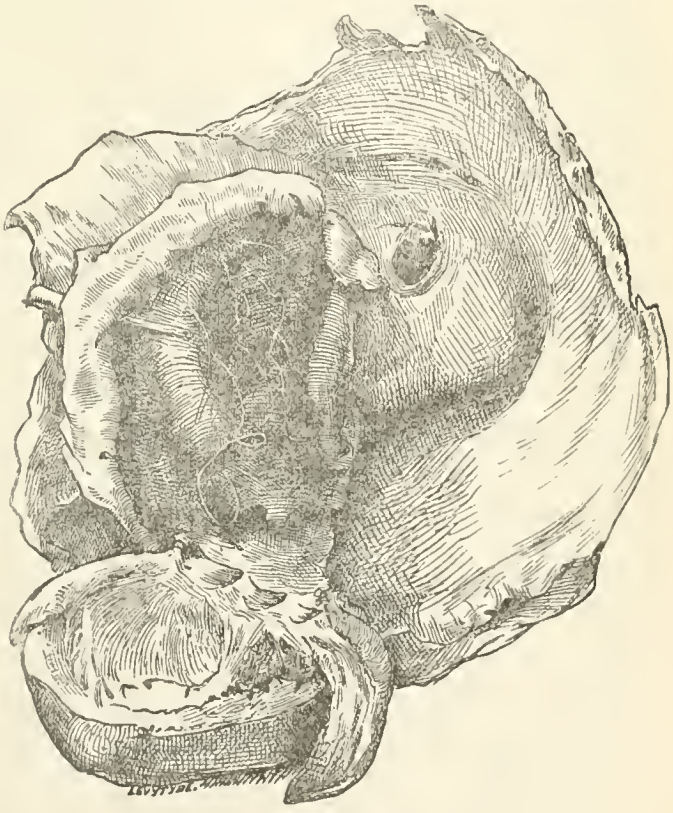
First. Was the operation justifiable?

Second. To what extent did it imperil the life of the patient?

Third. Did it offer any prospects of a radical cure of the aneurism?

Fourth. Do the cases hitherto reported, in which this plan has been tried, warrant its repetition?

1. It can hardly be questioned that in the case before us medicinal and postural treatment were tested and found inefficient. The choice remained between galvanopuncture, the introduction of wire, and distal deligation. Were the favorable reports of Ciniselli corroborated by others, his method would certainly have been resorted to. According to the most recent and weighty authorities, electrolysis fails, as a rule, to be of more than temporary benefit. Of eight cases referred to by Poore, all terminated fatally. Indeed, it is justly questioned whether the method accomplishes more than acupuncture, and in a recent successful case of aneurism of the root of the neck treated by galvanopuncture, it was found that the current was almost *nil*. In the absence of atheromatous changes in the arteries my choice would have been distal deligation. I was



Appearance of the aneurism post mortem.

deterred from following it because the dyspnœa was so intense and the œdema of the neck so pronounced that there was every probability of death during the operation. The introduction of wire was, therefore, practised as a last resort.

2. That the life of the patient was imperilled by the operation is certain. The specimen shows that notwithstanding the caution observed in introducing the wire, a loop passed beyond the neck of the sac entered the aorta, and was probably deflected by the semilunar valves. When this occurred, syncope, which was all but fatal, supervened. I was the less prepared for this mishap, since it had not occurred in the few cases previously recorded; furthermore, according to Bacelli, the absence of cardiac hypertrophy made the existence of a large aperture of communication exceedingly improbable.

Even with a loop of wire in the aorta, embolism, the danger most dreaded, did not occur. In only one of the reported cases, that of Moore, did death result from embolism, which possibly originated in an inflammatory state in the heart itself, and not in the aneurism. The supposition that a severe hemorrhage might ensue upon the prolonged retention of a canula in the sac-wall is purely theoretical. Neither in this case nor in those already published was there any bleeding during the operation nor immediately after the withdrawal of the needle. In Loreta's case of abdominal aneurism, in Levis's case of aneurism at the root of the neck, and in my own, death resulted from rupture of the sac. In the case reported by Levis the rupture occurred on the fourth day. In Loreta's case the tumor had consolidated to such an extent as to weaken the main trunk, which gave way at the neck of the sac. In the case here presented, this explanation will not suffice, since neither coagula nor loops of wire were found near the seat of rupture. This took place despite the operation, and not in consequence of it.

3. To the extent that physical signs can be construed to indicate the condition of the contents of an aneurism, those of the case presented precluded the existence of organizable coagula before surgical interference was undertaken. The tumor was soft, even fluctuating, pulsating forcibly, and rapidly increasing in size. The physical signs after the operation indicated the beginning of an attempt at a radical cure. The induration of the tumor, its decreased pulsation, and the simultaneous improvement in the symptoms justified a belief in the formation of an "active" clot. Post-mortem evidences confirm the belief. The walls of the sac are lined with firm, the interior with firm and loose coagula, embedded within which are the coils of wire. Similar conditions were found in the cases of Moore, Donville, Bryant, Bacelli, Schrötter, Loreta, and Caley. In almost all of these, however, all parts of the aneurism were not alike affected by the treatment, and it is, therefore, certain that very decided improvements in the technique of the operation, and particularly in the material introduced, must be devised before more than a partial or temporary coagulation shall result. It is not improbable that a less rigid, and hence less dangerous, material than wire or watchsprings will be determined upon. The firmness of the wire loops prevents unlimited diminution in the size of the sac during the process of contraction, and, as was probable in Loreta's case, may lead to rupture near the attachment of the sac to the main vessel. Watchsprings are readily changed chemically by their immersion, and, as happened in Bacelli's cases, are subject to breakage. To overcome these objections, Levis, Bryant, and Stimson have inserted horsehair, Murray catgut, and Schrötter Florence silk. In Murray's case, as was to be expected, the gut was found softened and without coagula about it. Whatever faith we can have of permanently relieving these cases should be centred in horsehair rendered aseptic. It is easily passed through a canula, and in large quantity; it coils readily, and is easily compressed. The report of Loreta's case influenced me in the choice of material used.

4. To determine the propriety of repeating the operation, at least a brief *résumé* of the literature of the subject is essential. This method of treating aneurisms may be said to have originated with Phillips,[1] who advised the retention of a seton for half an hour. Later, Sir E. Home[2] introduced heated needles into an iliac aneurism and thereby achieved coagulation. Velpeau, Agnew, Heath, Murray, Buck, and many others, have since resorted to acupuncture, but without notable success. The last named author, from his experience in two cases of aortic aneurism, considers the procedure inadmissible. In one of his cases threads of silk, in another suture pins were allowed to remain in the sac for twenty-four hours or more. Laminated clots were developed.[3] Richet mentions five cases in which acupuncture was tried without good results.[4] The most successful cases in which acupuncture has been resorted to, are those of Macewen[5] of popliteal and ileo-femoral aneurisms respectively. Fine needles were introduced into the tumors and retained for an hour, but were moved from place to place every ten minutes. Here, as in Rizzolo's case[6] of femoral aneurism, compression was used at the same time, and probably played the more important *rôle* in the production of a thrombus. In both instances digital compression was resorted to after the withdrawal of the needles. Murray,[7] in a case of subclavian aneurism, by repeated trials of complete transfixion with long needles achieved partial consolidation.

Case II.—The first case of the permanent introduction of a foreign body into an aneurism was that reported by Mr. Moore,[8] of the Middlesex Hospital, in 1864. The case selected was one of large thoracic aneurism which was on the point of bursting both into the pericardium and through the skin. Twenty-six yards of fine iron wire were inserted through a fine canula the point of which was moved about during the operation. Rapid coagulation and temporary arrest of pulsation followed. The pulse-rate was reduced from 116 to 78. The improvement was transitory. Severe

[1] North Amer. Arch., July, 1876. Quoted by P. Vogt. Reat-encyloped., Bd. i. p. 317.
[2] Philosph. Trans., 1796.
[3] Buck. N. Y. Med. Rec., vi. p. 140.
[4] Richet. Syst. of Surg., Holmes' Eng. ed., iii. p. 514.
[5] Lancet, 1877, ii. p 536.
[6] Ref. Handbook, vol. i. p. 213. [7] Ibid.
[8] Medico chirurg. Transactions, xlvii. p. 129.

inflammation of the sac and contiguous tissues supervened and the patient died on the fifth day. Pericarditis was presumably the immediate cause of death. Abscesses were found in the kidneys, but it is doubtful whether they were of recent origin.

Case III.—March 23, 1871, Dr. Domville[1] inserted fourteen inches of fine iron wire into an aortic aneurism that had perforated the chest-wall. The tumor became firmer, but continued to increase; on the 9th of April, nine needles, each two and one-half inches long, were introduced. Fatal hemorrhage supervened two weeks later. The foreign substances were found embedded in a firm clot.

Case IV.—May 14, 1872, Wm. Murray, of Newcastle, reported a case to the Medico-Chirurgical Society, in which a man lived for three weeks with twenty-four feet of wire introduced into an aortic aneurism.[2]

The next cases operated upon were those of Levis, of Philadelphia, Bryant, of London, Bacelli, of Rome, and Stimson, of New York.

Case V.—The case of Levis[3] was one of right subclavian aneurism into which twenty-four feet of horsehair were inserted. The patient succumbed on the fourth day from rupture of the sac.

Case VI.—Mr. Bryant's[4] case was one of popliteal aneurism in a man with ulcerative endocarditis and "chonic heart disease." Daily attempts were made with compression, which was continued for hours at a time. Epistaxis supervened and the patient was evidently sinking. Twenty feet of horsehair were then introduced into the sac and produced rapid coagulation. Death four days after the operation. The horsehair was found entangled in huge laminated clots. The cases of Bacelli[5] were all of the aorta, and watchsprings were used.

Case VII.—The first patient was operated upon on the 27th day of March, 1873. By the 4th of April the cough was less severe, the pulsation less marked, and the tumor had decreased in size. The patient died on the 26th of May. The autopsy revealed an aneurism of the ascending aorta which contained laminated clots surrounding six fragments of the watchsprings. The internal surfaces of the aneurismal wall were covered with fibrinous layers.

Case VIII.—Bacelli's second case occurred in 1877. On the 23d of April he introduced three watchsprings of a total length of five feet. The tumor decreased in size and pulsations almost ceased. The patient did well until examined by a considerable number of medical men, when she commenced to fail. She died on the 3d of May. At the autopsy the sac was found filled with clots containing parts of the spiral spring, but the coagula were not adherent to the sac wall. This separation Bacelli attributes to the examination alluded to.

Case IX.—This author operated on a third case in the presence of the delegates to the Sanitary Conference at Rome. Through an exploring needle he introduced seven watchsprings each twenty inches long. Death resulted on the third day, apparently from exhaustion.[6]

Case X.—Dr. L. A. Stimson introduced fifteen pieces of horsehair each six inches long into a ileo-femoral aneurism with an entirely different result. Coagulation did not ensue; favorable result was subsequently obtained from ligation of the iliac.[7]

[1] Stimson, Refer. Handbook, vol. i. p. 213.

[2] Brit. Med. Journ., 1872, vol i.

[3] Phila. Med. Times, March 28, 1874. According to Agnew, Levis made another unsuccessful attempt in an iliac aneurism, and Maury met with a bad result in one of the subclavian.

[4] Trans. Patholog. Soc., 1877, p. 103.

[5] Rev. crit. sur le traitement des Anev. de l'Aorta. Bull. gén. de Ther., 1878, vol. xcv.

[6] Brit. Med. Journ, June 20, 1885.

[7] Amer. Journ. Med. Sci., lxxx. p. 64.

Case XI.—November 9, 1883, Prof. Schrötter, of Vienna, inserted twenty inches of Florence silk into the outer segment of an aortic aneurism that had perforated the chest wall. On the 13th thirty inches of the same material were pushed into the lower segment of the tumor. The aneurism became firmer and pulsation less marked. It subsequently increased in all its dimensions, while intense œdema developed in its immediate vicinity. The temperature rose rapidly, probably from inflammation of the sac, and death resulted from œdema pulmonum on the 28th of November. The extra-thoracic part of the sac was filled with a laminated clot in which was found the Florence silk deposited in spiral coils.[1]

Case XII.—In December, 1885, Loreta,[2] of Bologna, after a careful study of other operative procedures in similar cases, resorted to laparotomy in a case of sacculated abdominal aneurism. The tumor was situated in the epigastrium and left hypochondrium. There was a loud bruit. The pulse was hardly perceptible in the femoral arteries, and ceased altogether when the tumor was compressed. Loreta determined, if possible, to separate the sac from its connection, and to close its opening out of the artery by suture or ligature. If this should prove impracticable, it was determined to stuff the cavity with wire. At the operation, at which the incision was made from the xiphoid cartilage to the umbilicus, the sac was found united to the stomach, omentum, transverse colon, and liver. It was impossible to sever these adhesions, and therefore to trace the aneurism to its mouth. A little more than two yards of silvered copper wire were then inserted into the tumor through a canula, and the point of puncture was lightly touched with pure carbolic acid. There was no bleeding. The abdominal wound was closed and healed by first intention. By the seventieth day after the operation, the tumor, which had been as large as the head of a newborn child, was reduced to the size of a walnut, and was firmly consolidated. The patient left the hospital cured. On the ninety-second day, however, he died of rupture of the aorta below the sac. This was filled with consolidated fibrinous clots. Loreta attributes the rupture to an ischæmia of the aortic tunics due to compression and to changes going on in the interior of the sac.

Case XIII.—The last case published is that of W. Cayley,[3] reported to the Royal Medical and Chirurgical Society, February 23, 1886. The patient was a man, aged forty-eight, with a pulsating tumor, rising about three inches into the neck behind the right sterno-clavicular articulation. The patient was unsuccessfully treated according to Tufnell's method, and given large doses of iodide of potassium. The tumor increased in size, and it was evident that it must either soon burst externally or extravasate among the tissues of the neck. On June 24th, Mr. Hulke introduced forty feet of steel wire. This caused no constitutional disturbance or local pain, and this portion of the aneurism became completely consolidated. Toward the middle of August, signs of the extension of the intrathoracic portion of the tumor became more marked, and there was an increase of pulsation behind the sternum and toward the left sterno-clavicular articulation. To anticipate fatal pressure on the trachea, Mr. Gould, in the absence of Mr. Hulke, introduced a canula just above the left sterno-clavicular joint, directing the instrument obliquely toward the middle line, and inserted thirty-four feet nine inches of wire. No constitutional disturbance followed, but no relief was given to the symptoms. The patient died in a paroxysm of dyspnœa on the 19th of Septem-

[1] Deutsch Arch. f. klin. Med., vol. xxxv. p. 139.

[2] Mem of the Roy. Acad. Bologna, vol. vi. sec. iv., Brit. Med. Journ., 1885.

[3] Brit. Med. Journ., February 27, 1886.

ber. On post-mortem examination, a large aneurism was found springing from the ascending aorta and communicating with the vessel by a very large orifice; the whole of the upper portion was completely filled by a clot, embedded in which was the wire. The lower portion of the sac caused compression and flattening of the trachea just above its bifurcation. The first operation produced the desired result in preventing the imminent rupture of the aneurism. The size and connections of the sac rendered the second operation ineffectual.

CASE XIV.—In the discussion of this case Dr. J. Liston Paul[1] reported a case of innominate aneurism under his care in 1874, which had been treated according to this method. The tumor bulged forward on the left side of the sternum. Fifteen feet of cleansed white horsehair were introduced. Slight pain and pricking over the tumor followed. In three days the tumor had grown larger and gave greater distress. On the fourth day the patient died in a convulsion. No search for emboli was made.

It is not remarkable that with such a record of failures the method under consideration has been pronounced "utterly useless" by so competent an authority as the late Dr. Gross, and that Agnew condemns it as "a rash, if not criminal trifling with human life." The fourteen cases in which it has been tried terminated fatally, with the exception of Stimson's case, in which the result was entirely negative. Still, analysis of the record tends to show that the criticisms just quoted are undeservedly severe, and that there are ample reasons for repeating the operation in suitable cases. In the first place, death has in no instance ensued during the operation, although after examining the specimen before us, the possibility of such an occurrence must be conceded. Again, considering the gravity of the disease, the insertion of foreign material into an internal aneurism is not particularly hazardous. In the third case of Bacelli, and in those of Moore, Levis, and J. Liston Paul, death followed on or before the fifth day after the operation, so that in only thirty per cent. of the cases can death be attributed to the operation itself, while in the remainder it in no way depended upon it.

In conclusion, the post-mortem reports that are available show that coagulation almost invariably took place in the sac, and when sufficient time elapsed before death, the clot was found laminated and often adherent to the sac wall. In some of the cases, at least, progress was made toward a cure. The aneurismal wall was strengthened, the tumor, as a rule, decreased in size, and life was made bearable, and even prolonged. This, I think, was accomplished in the first case of Bacelli, in that of Loreta and of Cayley, and probably in the one above reported. In all these cases death was imminent from compression of vital structures or from threatened rupture of the sac. Life was sustained for periods varying from three weeks to as many months from the date of operation. In view of these facts, and notwithstanding the failure of the method in effecting a cure, it appears to me that the practice is worthy of further trial. Of course, it should never be resorted to in aneurisms of peripheral vessels when so many safer methods are at our command. Nor is it admissible in internal aneurisms until all ordinary therapeutic measures have been fairly tried. Practised as a last resort in such cases, it has undoubtedly lengthened life, and it is far from improbable that, if often adopted, a permanent recovery will occasionally be obtained in cases that are hopeless without it.

[1] Brit. Med. Journ., February 27, 1886.

A NOTE ON LAPAROTOMY FOR INTESTINAL OBSTRUCTION.

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IN the valuable paper read by Dr. N. Senn before the American Medical Association, on "The Present Status of Abdominal Surgery," and in that part of it devoted to the discussion of laparotomy for obstruction of the bowels, I observe the following remark: "A dilated intestine would indicate that the cause of the obstruction is lower down, *while a collapsed bowel can only be expected on the peripheral side of the obstruction.*" (Italics mine.)

Dr. Senn expresses in this remark what seems to be a self-evident fact, and one which I would not have questioned six weeks ago. But I have since had an experience which proves the contrary. On April 3, I had occasion to do laparotomy for obstruction. The first object which presented itself at the abdominal wound was a *knuckle of collapsed small intestine.* I inferred that the obstruction was above the presenting gut. Upon enlarging my incision upward I was amazed to find the transverse colon distended to the point of bursting, the peritoneal coat being ruptured in several places. The obstruction proved to be a stricture of the sigmoid flexure.

On May 2, I performed the same operation for the same cause. Remembering my former experience, as soon as the peritoneal cavity was entered I examined the first loops of small intestine presenting. *They were collapsed.* The cæcum was distended, as was also the sigmoid flexure. The obstruction, as before, was a stricture of the sigmoid flexure.

I deem these observations sufficiently important to justify separate publication. A knowledge of what they teach would, in one of my cases, have saved much unnecessary exposure of the intestines.

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MEDICAL PROGRESS.

THE DIAGNOSTIC VALUE OF THE ABSENCE OF PUPILLARY REFLEX.—UHTHOFF, of Berlin, has found 136 instances of pupillary immobility in 550 cases of nervous disease, and 12,000 eye cases. The cases were distributed as follows:

1. *Tabes*, 92 cases, 67.6 per cent. In 6 cases the diagnosis was not perfectly certain, and in 4 the light reaction was not completely absent. In 29 of the cases there was optic atrophy, in 15 ocular paralysis, in 5 paralysis of accommodation in one eye, in 12 marked difference in the size of the pupils—*i. e.*, in about one-fourth of the cases of tabes where it was accurately noted.

2. *General Paralysis*, 12 cases, 8 per cent. Complicated in 4 cases, with optic atrophy.

3. *Syphilis*, 11 cases, 8.1 per cent., including cases of

cerebral syphilis and of syphilis without cerebral symptoms.

4. *Other Cerebral Diseases*, 8 cases, 5.8 per cent., including 2 cases of head injury with other paralyses, 2 cases of cerebral tumor (1 with neuritis), 1 case of hydrocephalus, 1 of post-neuritic atrophy, 1 of hemiplegia, and 1 of pachymeningitis.

5. *Multiple Sclerosis*, 2 cases, 1.4 per cent. The diagnosis in one case not absolutely certain.

6. *Railway Spine*, 2 cases, 1.4 per cent. The reaction in one case noted as very slight.

7. *Congenital*, 2 cases, 1.4 per cent. In both cases with rudimentary development of iris.

8. *Head Injury*, 1 case, 0.7 per cent., with strong alcoholic history; no other cerebral symptoms.

9. *Aneurism of Innominate Artery*, 1 case, 0.7 per cent.

10. *Congenital Imbecility*, 1 case, 0.7 per cent., combined with retinitis pigmentosa and great concentric narrowing of visual field.

11. *Abuse of Tobacco*, 1 case, 0.7 per cent.

12. *Hystero-epilepsy*, 1 case, 0.7 per cent., with previous ocular paralysis and possibly a gross lesion.

13. *Right Hemianæsthesia*, 1 case, 0.7 per cent., combined with inequality of pupils; diagnosis still doubtful.

14. *Cause unknown*, 3 cases, 2.2 per cent.

In these two groups of patients, tabes is naturally a much more frequent cause of loss of pupillary reflex than is general paralysis. Among the 58 cases of tabes observed in Westphal's clinic, the light reaction was completely absent in 55.5 per cent., and was extremely feeble in a further proportion of cases, bringing the percentage up to 64. Erb finds it absent or extremely slight in 84.5 per cent. of cases of tabes. Paresis of accommodation was present in only 5.4 per cent., but contraction of the pupil with convergence was much oftener absent. The pupils differed in size in about one-fourth of the cases of tabes, much less often than in general paralysis. Of the 11 cases of syphilis, 8 had well-marked symptoms of cerebral syphilis. Of the other 3, two were children who had suffered from hereditary syphilis; and the remaining case was of interest, in that the loss of pupillary reflex was, with the exception of loss of memory, etc., the single symptom remaining of past cerebral syphilis with paralysis of both third nerves. The fact that loss of pupillary reflex occurred in two cases of "railway spine" seems to Uhthoff to show that in some of these cases at least there is an anatomical change. Some of the remaining cases were not sufficiently long under observation for the diagnosis to be certain.

The above classification is exclusive of cases where the absence of pupillary reflex was combined with loss of accommodation — the ophthalmoplegia interna of Hutchinson. Of this condition 30 cases occurred.

1. *Syphilis*, 8 cases—*i. e.*, 23.3 per cent.; 6 unilateral, 2 bilateral.

2. *Tabes*, 3 cases—*i. e.*, 10 per cent.; 2 unilateral, 1 bilateral.

3. *General Paralysis*, 2 cases—*i. e.*, 6.6 per cent.; 1 unilateral, 1 bilateral.

3. *Injury*, 2 cases—*i. e.*, 6.6 per cent.; both unilateral and both with dislocation of lens.

5. *Severe Chill* (?), 1 case—*i. e.*, 3.3 per cent.; unilateral.

6. *Commencing Tubercular Meningitis*, 1 case; bilateral.

7. *Cerebral Tumor*, 1 case.

8. *Cause unknown*, 12 cases—*i. e.*, 40 per cent.; 7 bilateral, 5 unilateral.

Syphilis is evidently by far the most common cause of this affection; tabes and general paralysis but rarely producing it. In syphilitic cases it is almost invariably unilateral; and in one case where it was bilateral the second eye was affected years after the first. The history of syphilis, where it could be definitely obtained, dated back seven to eight years. In 40 per cent. of the cases there was no evident cause. These were chiefly young people, twenty to thirty years of age. The affection was generally bilateral and temporary, sometimes lasting only a day, but in one case permanent and stationary for twenty years, generally attacking both eyes at the same time, and accompanied by other nervous phenomena—points distinguishing these from the syphilitic cases. They naturally suggest some form of poisoning, but inquiry failed to substantiate this supposition.

Uhthoff states some exceptions to the rule that the sphincter paralysis and the failure of accommodation come on together. He also records a case of peculiar oscillatory contractions of the pupil in a patient with cerebral syphilis and loss of light reaction, these contractions being constant and independent of the illumination of the pupil. He closes with two cases of pupil affection, illustrating the physiological action of cocaine, which should, he considers, be used in cases of difficult pupillary diagnosis.—*Ophthalmic Review*, April, 1886.

Alcoholism.—Dr. James C. Wilson makes the following division of alcoholism:

I. Acute alcoholism.
  (A) Ordinary typical form.
  (B) Irregular forms.
    1. Maniacal.
    2. Convulsive.
    3. In persons of unsound mind.
  (C) Acute poisoning by alcohol (lethal dose).
II. Chronic alcoholism.
  (A) Visceral derangements.
    1. Local disorders.
      a. Of the digestive system.
      b. Of the liver.
      c. Of the respiratory organs.
      d. Of the circulatory system.
      e. Of the genito-urinary apparatus.
    2. Disorders of special structures.
      a. Of the locomotor apparatus.
      b. Of the skin.
  (B) Derangements of the nervous system. Cerebro-spinal disorders.
    1. Cerebral disorders. Complications.
      a. Lepto-meningitis.
      b. Pachymeningitis.
      c. Epilepsy.
      d. Cerebral congestion.
      e. Cerebral softening.
      f. Sclerosis.
    2. Spinal disorders.
    3. Disorders of the special senses.
  (C) Psychical derangements.
    1. Alcoholic delirium in general.
    2. Delirium tremens.
    3. Alcoholic psychoses.
III. Hereditary alcoholism.
IV. Dipsomania.

True dipsomania is not a manifestation of alcoholism, but a periodical insanity. The relations of alcohol to it are symptomatological, not etiological.—*Journal of Nervous and Mental Disease*, March, 1886.

SULPHATE OF QUININE AS A STIMULANT TO THE HÆMATOGENIC FUNCTION.—HARE, of Philadelphia, has experimented upon himself in regard to the effect of moderate doses of sulphate of quinine on the quantitative relations of the corpuscular elements of the blood. His results are tabulated below, each numerical statement representing the mean of three observations. He used the apparatus of Malassez, with the mixer of Potain. In taking the dose, the following order was adhered to: Four grains at bedtime, and three grains each after breakfast and after dinner, at midday.

The tables show a very considerable increase in the red blood-corpuscles when the system is under the influence of quinine. It is proper to state that, owing to idiosyncrasy, ten grains of this drug a day produced positive symptoms of cinchonism.

NO DRUG USED.			DRUG USED: 10 grains of quinine per day.		
Date.	Hour.	No. of red blood corpuscles in a cub. millimetre	Date.	Hour.	No. of red blood corpuscles in a cub. millimetre.
Dec. 28	10 A. M	5,740,000	Jan. 4	10 A. M.	5,750,000
" "	6.30 P. M	5,040,000	" "	6.30 P. M	5,640,000
Dec 29	10 A. M.	6,142,000	Jan. 5	10 A M.	5,940,000
" "	6.30 P. M	5,820,000	" "	6.30 P. M.	6,000,000
Dec. 30	10 A. M.	6,840,000	Jan. 6	10 A. M	6,120,000
" "	6.30 P. M.	6,080,000	" "	6.30 P. M	5,940,000
Dec. 31	10 A. M.	6,120,000	Jan. 7	10 A. M	6,180,000
" "	6.30 P. M.	5,640,000	" "	6 30 P. M	6,120,000
Jan. 1	10 A. M.	5,940,000	Jan. 8	10 A. M.	6,840,000
" "	6.30 P M.	5,220,000	" "	6.30 P. M	6,380,000
Jan. 2	10 A. M.	6,060,000	Jan. 9	10 A M	6,540,000
" "	6 30 P M	5,830,000	" "	6.30 P. M.	6,420,000
Jan. 3	10 A M	5,940,000	Jan. 10	10 A. M	6,500,000
" "	6.30 P. M.	5,100,000	" "	6.30 P. M.	6,340,000
Average number before drug . .		5,822,286	Average number with drug . . .		6,194,285

—*Boston Medical and Surgical Journal*, April 22, 1886.

THE TREATMENT OF FEVER BY ELECTRICITY.—PROF. E. DE RENZI, having by chance observed a case of quartian fever cured by the application of electricity, instituted a series of experiments in this direction, and has formulated, as a result of these observations, the following conclusions:

1. Fevers of malarial origin resist the action of the electrical current much more than do those symptomatic of bronchitis, pulmonary phthisis, etc.

2. During the application of electricity the temperature remains elevated, or even rises to a fraction of a degree; but soon after, at the most within an hour or two, a fall of several degrees occurs.

3. The best effect is obtained by holding a moist electrode in the hand while a metallic brush attached to the other pole is swept over the surface of the body.

4. Arterial pressure is increased during the application, the skin becomes reddened and often moistened with perspiration, and the pulse is increased in force. It is probable, therefore, that the antipyretic effect of electricity is due to the increased activity of the cutaneous capillary circulation, whereby caloric is more rapidly lost.—*Medical Age*, April 26, 1886.

INFLUENCE OF DIET ON HEADACHE.—In the *Practitioner* for March, 1886, DR. HAIG continues a paper, the first portion of which appeared in the July number of 1884, where he narrated a case in which diet had a marked influence in preventing attacks of megrim. The author now considers that the cause of such headache is uric acid. The reasons given for this opinion are founded on—(1) the clinical relationship of megrim and gout; (2) the remarkable way in which this headache is kept in check by a diet poor in nitrogen, or is cured by calomel or salicylic acid, iodide of potassium, or even colchicum; (3) the signs of gout that are found in the family history of patients who suffer from these headaches. The subjects of these headaches do not suffer from any of the acute symptoms of gout, but rather from what is termed by some "quiet gout." In many cases it has been noticed that these patients suffer from an irritable hyperæsthetic and easily tired eye, a condition recognized by Mr. Hutchinson, as evidence of a gouty tendency. Dr. Haig now treats megrim by means of small doses of salicylate of sodium, two or three grains being given every quarter of an hour, for three or four doses, as soon as the headache commences. By this means the headache goes away entirely, and shows no sign of return for a considerable period. As to diet, the author recommends abstinence from butcher's meat, cheese, beer, wine, etc. Many patients who leave off meat are free, but directly they recommence eating meat they have a return, and consequently more importance is attached to the regulation of the diet than to the use of drugs for the relief of the headache.—*London Medical Record*, April 15, 1886.

STRYCHNINE IN DIPSOMANIA.—In the *Vratch*, No. 10, 1886, p. 177, DR. U. M. POPOFF, of St. Petersburg, states that, guided by the works of Magnus Huss, Lutun, Dujardin-Beaumetz, and others, he employed nitrate of strychnine in two typical cases of dipsomania, and obtained strikingly successful therapeutic results. In one of the patients (a very gifted man of letters, aged forty), the alkaloid was administered under the skin, in the dose of $\frac{1}{30}$th of a grain at first (during a drinking bout) daily, then every other day, then twice a week, etc. The patient ceased to ask for drink after the second injection; within the next two days, various morbid phenomena (headache, weakness, discomfort, etc.) disappeared. On subsequent occasions, a few injections of $\frac{1}{60}$th or $\frac{1}{45}$th of a grain of strychnine rapidly removed craving, anxiety, irritability, agoraphobia, and other premonitory symptoms of a threatening dipsomaniac attack. The patient each time rapidly improved in all regards, and felt desire for work and society. In another patient, dipsomania disappeared under the internal administration of strychnine, the alkaloid being given for the first two weeks in doses of $\frac{1}{30}$th of a grain, and for another two weeks in that of $\frac{1}{60}$th, twice a day, in pills.—*British Medical Journal*, May 1, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, MAY 29, 1886.

THE FATE OF INTESTINE SEPARATED FROM ITS MESENTERY.

ONE of the most important questions in connection with the now much discussed subject of operations on the intestines, is the determination of what may be expected to happen in cases in which a part of the bowel is separated from the mesentery. This question has been studied experimentally by a number of surgeons. Madelung, in 1881, reported to the Tenth Congress of German Surgeons a series of experiments on rabbits, which he thought showed that the bowel always became gangrenous when it was separated from the mesentery for an extent of from four to six inches. Rydygier, in the *Berliner klin. Wochenschrift*, 1881, recorded the results of similar experiments upon dogs as well as upon rabbits, with the conclusion that different species of animals withstand this operation in different degrees. Dogs he found to recover after separation of the mesentery to an extent which proved fatal to rabbits. He found, also, that the greater the extent of the separation the greater was the danger; and, what is of the most consequence, that the danger increases the nearer to the intestine the separation is effected. After this, Tansini, in 1885, reported the results of some experiments undertaken to ascertain whether different parts of the bowel differ in their power of recuperation after separation from the mesentery. He concluded that the small intestine withstands such interference decidedly better than does the large intestine.

Most recently ZESAS, in an interesting paper in the *Archiv für klinische Chirurgie*, Bd. xxxiii. Heft 2, has given a brief *résumé* of the recent studies in this direction, and an account of his own experiments and conclusions. This paper seems to show conclusively that the fate of the portion of intestine separated from its mesentery depends entirely upon the effect of such separation upon the circulation of the part. It also seems clear that separation from the mesentery close to the bowel deprives the latter of its blood supply, and is followed by gangrene, while separation at a distance not less than an inch, or an inch and a half, is comparatively harmless. The arrangement of the bloodvessels in the mesentery is such that if a little of this be left attached to the bowel, it will convey a good supply of blood to the latter by means of the many inosculating vessels which it contains.

The practical lessons which Zesas thinks are to be drawn from these facts may be stated as follows: In wounds causing a separation of the bowel from its mesentery close to the bowel, the part so separated must be removed in order to avoid the danger of subsequent perforating peritonitis and gangrene. If the separation has occurred at a distance of about an inch from the bowel, the separated portion need not be resected, but may be expected to recover. In case of a transverse wound of the bowel, accompanied by partial separation of the mesentery, the same principle holds true, and if the mesentery is detached close to the bowel, the corresponding part of the latter must be resected.

The importance of these conclusions, in connection with the whole subject of wounds of, and operations upon, the intestines, can scarcely be overestimated. It seems remarkable that it should have been nearly five years after the matter was first made the subject of investigation that what seems to be the natural explanation of the discrepancies of the earlier experiments should be clearly defined. Now that this has taken place, however, there is furnished to surgeons one more means of properly estimating the results of accidents or experiments which separate the bowel from its mesentery, and of treating such separations correctly.

A PLEA FOR MUSCLE-TRAINING.

A FEW years ago, MR. WILLIAM BLAIKIE asked the public to stand at Fulton Street and Broadway crossing and look at itself. Pointing to the throngs of men, old and young, who hurried past, he remarked that "scarcely one in ten is either erect or thoroughly well built." The desire of youth to possess a good figure, and the uncertainties of padding have induced many men to profit by Mr. Blaikie's book, from no higher motive than that they might be trained into "things of beauty:" but, in spite of this low aim, many a weak back has been straightened, many a narrow chest enlarged, and, doubtless, many lives will push on more bravely toward the three score years—and ten. We do not, however,

refer now to training as a means of great athletic development. We would rather direct the attention of the general profession to gymnastics as an aid to therapeutics.

Every physician is "called in" to see the children of tubercular parents, and can find nothing markedly wrong. If he takes the time and trouble to examine the naked chest, he sees a long, thin neck, narrow, drooping shoulders, flat or hollow chest, wing-like scapulæ, a skin so thin and delicate that everywhere the veins are mapped out clearly. Here and there a few ribbon-like bands are stretched in lieu of muscles. Breathing is mostly diaphragmatic, and causes but feeble expansion of the upper chest. The most marked appearance is the undeveloped state of the muscles.

What shall he do? The child is easily fatigued, and its appetite is poor. He, or she, is fond of study; reads constantly, and prefers indoor amusements; suffers from cold if the house is not heated to a high degree of temperature; and sits frequently by "the register." Indeed this individual—scarcely yet a patient—seldom enjoys a brisk walk in the open air, and, if persuaded to attempt one, is very apt "to take cold." There are certainly few symptoms, as yet, upon which to hang a diagnosis; but, as the doctor writes some lines in his case-book, he has a mental vision of this patient walking down a short, dim vista of the future, and lo! on the ground behind are strewn many bottles. Each has its label, and the physician reads, "cod-liver oil," "cod-liver oil and malt extract," "cod-liver oil and hypophosphites," "iodoform," "creasote," "mercuric bichloride." There are tonics innumerable, compressed-air inhalers, oxygen inhalers, bacterium termo inhalers. He looks not at the end, but, as he closes his book, thinks somewhat as follows: Pure air and sunshine are essential to life. Their enjoyment requires a certain amount of muscular effort upon the part of the individual. This patient is too weak to endure exertion, too weak to breathe properly, and, as a result, much lung tissue is unused, blood is poorly aërated, and all the attendant evils follow. Why not gradually train the muscles to a healthy development and see if the "general tone" does not improve in proportion as muscular strength increases?

The experiment is worth trying. Select a well-ventilated, sunny room—if the season be too cold for outdoor work—and treat the patient for a certain time each day with the lightest possible exercise. Avoid exhaustion, and increase the amount of exercise by very slow degrees. The heart is called upon to beat stronger and faster. Blood begins to circulate freely. The lungs must pump in more air, and their apices begin to expand. So the circle of life is started, and, with increased growth of voluntary comes an increase, also, of involuntary muscle. Tissue changes demand increase of food. The appetite improves, and the healthier nervous system finds healthier glands to carry on digestion and assimilation. With growing health and strength comes a natural desire for air and sunshine; nor do changes of temperature so readily cause congestions as in the former sluggish state. Whereas, before, a single game of tennis meant a week of sore limbs and aching back, the child now gains hearty pleasure from out-of-door amusements.

There is no space here in which to speak of the details of this treatment. That must be gained from books and papers on the subject. Blaikie's small book, "How to Get Strong," gives much practical information in a concise and satisfactory form. Other works may be in course of publication. We would call the attention of the general practitioner to this oft spoken of but too little practised system, and ask him to try such treatment upon the younger members of his "tubercular families." If judiciously carried out, it will delay the dreaded day of crepitant râles and night-sweats, or, perhaps, effectually prevent their coming.

OBSTACLES TO FECUNDATION.

SOME recent remarks by PAJOT upon the obstacles to fecundation in the human species contained in the *Journal d'Accouchements* of April 30, have considerable practical interest. He regards uterine catarrh as one of the most common causes of sterility, and states that in ten or twelve out of every twenty women who consult the physician on account of their being childless, this disorder is present; in some the flow is so excessive that the patients have to wear a napkin as if they had their monthly discharge, while in others there is simply a plug of mucus which closes the opening of the cervix, and is difficult to remove. If his explanation of sterility for so large a proportion of cases be correct, certainly the treatment of the affection is encouraging, for most of the cases of uterine catarrh are curable, and, therefore, we may expect to cure the sterility caused by it.

Conical cervix is next considered as a cause of sterility, but no special treatment is advised.

Uterine deviations are stated, by him, to be wrongly regarded as causes of sterility. Indeed, he does not regard such positional disorders of the uterus as anything more than a mere infirmity, an infirmity such as having only one eye, or being lame, and one which can be very well endured; he thinks that if women are not informed by their physician, or by a midwife, of the uterine displacement they do not, as a rule, suffer from it. Undoubtedly there are many cases both of anterior and of posterior dislocation of the uterus which do not cause suffering; suffering depends more upon the condition of the

displaced organ and of parts adjacent than upon the displacement. Nevertheless there are other patients who are marvellously and promptly relieved of local distress, or of reflex disorder, by restoring the uterus to its normal place.

But, on the other hand, the mechanical school of uterine pathologists have exaggerated the significance of uterine displacements as causes of suffering, and as interfering with the special functions of the uterus, menstruation and childbearing. Schultze, whose work upon uterine deviations is probably the best which has been written, very fully considered the relation which such deviations hold to dysmenorrhœa and sterility, and his conclusions certainly give little support to those practitioners who are perpetually seeking to remedy these conditions by mechanical means. We cannot yet believe that the place occupied by a woman's womb is a matter of entire indifference; nature assigned it a local habitation, and tethered it there, so that, though temporarily changing its position with the condition of the neighboring organs, with the position of the subject, with the amount of abdominal pressure, and with its own physiological state, it is ultimately brought back to its place.

THE METHOD OF ANTYLLUS FOR THE TREATMENT OF ANEURISM.

In The Medical News for May 1st, we called attention to the method of Antyllus, especially as applied to the treatment of popliteal aneurism, and urged the advisability of reconsidering the general judgment against this method, in view of the advances of modern surgical technique. Since then there has come to hand an interesting communication on the same subject in the *Edinburgh Medical Journal*, Feb. 1886, by Prof. Thomas Annandale, in which views similar to our own are supported by a sensible argument, and by an account of most favorable results obtained by Mr. Annandale in three cases. The opinions of this writer are so like those which we have already expressed that we need not repeat them all. But we may quote his conclusions, namely, that the method of Antyllus is to be preferred to ligation in Scarpa's triangle, in the treatment of popliteal aneurism: 1. In cases of large aneurisms filling up the space, and interfering by pressure with the venous and other circulation of the limb below, or causing serious nerve pressure. 2. In rapidly growing aneurisms, which have attained some size. 3. In ruptured and diffused aneurisms. 4. In aneurisms which have involved the knee-joint by pressure. 5. In aneurisms attacked with inflammation and suppuration. 6. In aneurisms which the ligature of the femoral artery and compression have failed to cure. 7. In arterio-venous and other aneurisms of traumatic origin. 8. In cases of general arterial disease, provided surgical interference is considered advisable or necessary.

The operation should, of course, be done with antiseptic precautions. The femoral artery should be compressed with a tourniquet. The sac should be laid open freely, any contained clots should be turned out, the arterial openings into and out of the sac should then be closed with ligatures, the sac thoroughly disinfected, the incision sewed up after the introduction of a drainage tube, and the wound dressed antiseptically. A very ingenious feature of the technique of this operation, as practised by Prof. Annandale, consists in his method of ligating the vessel, or vessels, communicating with the sac. This is done by introducing a bougie of suitable size into the openings from the side of the sac, in making a small incision through the wall of the sac on each side of the bougie, and in passing the aneurism needle through these round the vessel, the ligature being tightened as the bougie is carefully withdrawn. This detail we would recommend as a very material improvement upon the former manner of securing the vessel or vessels, and we feel little doubt that it will be found to contribute to the ease of performing the operation, to the convenience of the surgeon, and to the good of the patient.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Thirty-seventh Annual Meeting, held at St. Louis, May 4, 5, 6, and 7, 1886.

(Specially reported for The Medical News.)

Section of Surgery and Anatomy.

Tuesday, May 4.—First Day.

Dr. William M. Mastin, of Mobile, Alabama, presented a paper on

VENOUS BLOOD TUMORS OF THE CRANIUM IN COMMUNICATION WITH THE INTRACRANIAL VENOUS CIRCULATION, ESPECIALLY THE SINUSES OF THE DURA MATER,

which contained the following propositions in brief:

1. Cranial venous blood tumors communicating with the dural circulation may be divided into congenital, spontaneous, and traumatic.

2. These classes, upon anatomical and pathological grounds, are divided into two species: the diffused, and the venous or vascular.

3. The venous type is the commoner, and of this form, varicose involvement of an emissory vein is the most frequent form, whilst the diffused is rare.

4. The diffused variety is especially characteristic of the spontaneous and traumatic groups. The venous or vascular type occurs most frequently in the congenital class, but is also met with in the spontaneous division.

5. The medium of communication with the intracranial circulation is, in the very large majority of cases, represented by the superior longitudinal sinuses.

6. In a causal relation some morbid action in the venous walls is notably prominent in the congenital class; atrophic or rarefying osteitis in the spontaneous group; direct injury in the traumatic division.

7. Palliative measures for retarding or arresting he progress of the growth, and certain forms of compression, are useless applications.

8. General surgical interference is not called for, because the history, nature, and progress of the lesion are opposed to indiscriminate operation.

When deemed expedient, however, the following methods seem to be open for adoption.

1. If the growth be of the diffused type or that form consisting of a varix sinus, exposure and ligation of the pedicle, or, if necessary, deligation of the sinus in its course—the trephine being boldly employed to furnish space requisite for the necessary attending manifestation.

2. If the tumors be composed of varicose emissory vessels or diploic dilatations, either electropuncture or strangulation of the base is justifiable, by preference the former.

Dr. Moses Gunn, of Chicago, read a paper on

THE VALUE OF AN ATTEMPT AT ENUCLEATION IN A NEUROMA WHICH SEEMS TO DEMAND RESECTION OF THE NERVE.

A man thirty-six years of age was brought under treatment August 10, 1885. Growth began fourteen years ago, on inner side of right arm. It increased slowly till two years ago, when it had attained a size of one and one-fourth by one and three-fourths inches. Three years ago it became tender to touch. Pain on ulnar side of the hand extending to the little finger and ulnar side of the ring finger; at first nocturnal, it later became constant, and patient began to loose flesh. Nerve resection was advised and consented to.

During the initial steps of the operation he thought it advisable to change the method of procedure, determining to enucleate the mass. This was done, and the capsule was found to consist mainly of neoplastic tissue, involving and obscuring completely the widely separated nerve fibres. The collapsed bag or capsule was continuous above and below with the ulnar nerve. In this capsule the nerve fibres had been almost completely occluded by the neoplasm. The wound with proper treatment healed kindly, and patient was discharged September 1st, free from pain and impairment of function of parts to which the ulnar nerve is distributed. Microscopic examination disclosed the "distinctly fibrous" character of the mass. The speaker now proceeded to consider certain features of his report, drawing a parallel between cases of this character and spina bifida, so far as the adaptivity of nerve tissue to altered circumstances is concerned. The patient returned on November 30th with a reappearance of the disease, involving the same length of nerve, but tumor less in size. Resection was now determined upon and performed. The character of this new mass was almost identical with that first removed.

A complete resection having been made, a paralysis of the parts to which the ulnar nerve was distributed followed. He denuded the median nerve of its sheath and grafted the end of the ulnar upon the median. The wound was closed, and the hope of the possibility of getting new root entertained.

At that time he thought the procedure to be original, but he has since found that Despres, of Paris, had made an identical operation; grafting, however, the median upon the ulnar, and had obtained satisfactory results at the end of one or two months. In the speaker's case the wound healed kindly in eighteen days, without suppuration. At that time the patient had slight sensation in the ulnar side of the ring finger, and some power in the flexor carpi ulnaris. The patient was examined some time thereafter, showing a decided increase in the power of that muscle. There was marked increase in sensation of ulnar side of the ring finger, but lack of sensation in the third finger, which was cold. Early in May an examination was again made. The slightest touch could be detected on the ulnar side of the ring finger; the little finger was warmer, and decided improvement in the action of the flexor carpi ulnaris, as shown by the free mobility of the hand and arm. Hand can be adducted completely. This result ought certainly to encourage us in performing the compensatory operation of nerve stretching, and demonstrates that the function of the nerve, motor or sensory, depends, not upon peculiarities of the nerve itself, but upon the machinery within it. The speaker thought that this fact had been borne out conclusively by nerve suture. Nerve suture is an established procedure, both as a primary and secondary operation. Within a few weeks after its performance, sensation and muscular power return.

On the supposition that certain nerve fibres are intrinsically sensory or intrinsically motor, it was thought that we must so attach the ends that the sensory will touch the sensory, and the motor will touch the motor fibres. Since then it has been proven that sensation and motion do not depend upon the fibres, but upon the machinery which actuates them.

Dr. B. A. Watson, of Jersey City, then read a paper on

SARCOMATOUS TUMORS, WITH THE REPORT OF A CASE.

He reviewed the various names which have been employed by modern authors to designate these tumors. He described in detail their location, character, both macroscopic and microscopic, and dwelt on the importance, from both a diagnostic and prognostic standpoint, of making a differential diagnosis of sarcoma and carcinoma of the breast.

He reported a case of spindle-celled sarcoma, and presented the pathological specimen. Patient was a boy, twelve years of age. The tumor was discovered November, 1885; it was the size of a goose egg, and was situated posterior to the middle third of the left femur. The patient had never complained of pain or inconvenience. He died January 5, 1886, while in charge of the family physician. About December 1 a mottled appearance of the integument covering some parts of the tumor was noticed. Soon a change in color, turning from red to a brownish-black. The case was seen in consultation December 20, and he removed the tumor January 4, the growth having changed in form in the mean time, and increased in size; superficial veins were not much enlarged. The tumor was embedded in the deep connective tissue, its anterior surface approaching closely to the periosteum of the femur, the sciatic nerve passing through one-third of its lower

portion, grooving deeply the upper two-thirds of the posterior surface. Operation was speedily accomplished, and with little loss of blood. Patient reacted well, but within a few hours it was observed that the mottled appearance which had been previously mentioned was rapidly extending over the limb, and within thirty hours after operation gangrene reached the toes and abdomen. Patient died within thirty-four hours. Tumor was a fibro-sarcoma.

The chief interest attaches to the involvement of the sciatic nerve in the morbid growth, which unquestionably caused the vasomotor disturbance, and ultimately the gangrene following the operation.

DR. JOSEPH RANSOHOFF, of Cincinnati, reported

A CASE OF AORTIC ANEURISM TREATED BY THE INSERTION OF WIRE.

(See page 597.)

DR. HERRICK, of Cleveland, said that no clew had been given to the cause of the aneurism. He supposed it to be a false aneurism, involving the destruction of the inner coat.

The question arises, How far are we, as surgeons, to give our influence to empirical surgery? Is there a rational hope of relieving aneurismal tumors by this process? In imitating this operation we must certainly consider the cause, location of the tumor, and the possibility of benefiting the patient.

DR. RANSOHOFF remarked that he did not dilate upon the cause of the aneurism because he entertained a fear that the paper would prove too long. It was, no doubt, a traumatic aneurism, and on that very fact he had based great hopes for success. If depending upon atheromatous degeneration of the aorta, with a coexistence of that change in other arteries, then benefit cannot be expected from such interference. He was convinced that there is good, rational ground for repeating the operation. As a *dernier ressort* it is certainly advisable.

In Loreta's case, the size of the tumor had been reduced from that of the size of two or three fists to that of a walnut. The patient had been discharged cured, but a severe exertion subsequently caused the main trunk to give way at the neck of the sac.

The operation should be adopted only as a last resort, when all other measures have been faithfully tried.

DR. EDMUND ANDREWS, of Chicago, read a paper on

THE INCISION, DIGITAL EXPLORATION, AND DRAINAGE OF LUMBAR ABSCESSES.

He took the ground that lumbar abscesses are not more dangerous than others, rarely causing death when thoroughly explored and completely disinfected.

Some surgeons still consider opening and even aspiration as extremely dangerous. He did not discuss this antiquated opinion. No danger attends free opening and thorough disinfection, and the patient, in many instances, makes a good recovery. Opening becomes necessary after repeated aspiration has failed. Thorough exploration with the finger is a prime necessity. The original sac is inside the body but behind the peritoneum, and communicates by a small orifice with another broad sac which expands beneath the integument. First open the outer sac widely, and examine the floor of the cavity with the finger and, if necessary, with a long probe until the opening into the interior sac is found. Passing inward, the spinal column can be examined for necrosed portions or excavations.

If the abscess points in the angle between the crest of the ilium and the spinal column, a wide opening should be made into the external sac and the narrow opening into the anus enlarged. If it runs along the internal iliac fossa toward Poupart's ligament, another free opening should be made at that point. At other times it runs behind the kidneys and sometimes sends pouches in three or four directions. In making the openings we are aided by the long brittania metal sound, which should be also used to trace the channel into the lumbar region. If this be accomplished, we should then cut down upon the sound. Every opening must be tubed and the cavities kept well disinfected. The upper tubes taking away the pus at its source, the lower cavities will heal without difficulty, giving us a small and simple abscess to deal with. He then reported several cases in illustration of the subject, and presented the following conclusions:

1. Some lumbar abscesses recover by a series of aspirations with antiseptic measures.

2. If aspiration fails, free incision, exploration, and complete disinfection should be carried out at once.

3. Residual abscesses should be treated in the same way.

4. Sudden evacuation of a large cavity filled with pus, if immediately disinfected and kept so, has none of the dangers supposed by old authors to beset the case.

DR. BYRD, of Quincy, Ill., had observed and treated four cases similar to that reported. The probe employed may be twelve to eighteen inches in length. For the purpose of washing out the cavity he had found no better disinfectant than the peroxide of hydrogen. By washing out the cavity we get also the benefit of hyperdistention, advocated and taught by Mr. Callender, of London, and all parts are thoroughly touched by the antiseptic used.

DR. FENGER, of Chicago, remarked that lumbar abscess appears only as a symptom, and we must search for the disease deeper down. There is a great difference between that depending upon tuberculosis of the spine or the septic abscess of the kidney, intestine, or glands, or of the connective tissue alone.

According to his experience, there can be no choice as to time of incision in case of septic abscess. In spite of all antiseptic measures some of these abscesses terminate just as they did before the precautionary measures were employed. In psoas abscess the opening should be made in the lumbar region.

DR. LEWIS, of Kansas City, supposed that opinions would not vary much as to the treatment after the diagnosis of the disease, but the difficulty is in its early recognition. He desired to obtain Dr. Andrew's opinion as to whether there was any positive symptom which would suggest surgical interference in the early stages of the trouble. Is it imperative to resort to aspiration?

DR. HAMILTON, of Columbus, Ohio, stated that in the vast majority of cases it is not necessary to resort to the aspirator for diagnosis.

DR. RANSOHOFF remarked that the teachings of thirty or forty years ago differ widely from those of the present time. To-day we are taught first to ascertain the cause

of the abscess, for by drainage, in many cases, we may hasten the fatal issue. He wished to illustrate this by referring to the case of a boy, seven or eight years of age, who had an attack of supposed perityphlitis. Aspiration was resorted to, without benefit. He came to the conclusion that free incision was the only hope for saving the life of the patient. Two incisions were made, and exploration disclosed the fact that the condition depended upon tuberculosis of the ilium. The patient was losing from one to one and a half pints of pus three times a week. The wound was kept thoroughly aseptic, and there was no elevation of temperature, but the patient was losing strength. The speaker agreed with Dr. Fenger that lumbar abscess is only a symptom, and an opening will no more cure it than it will disease of a joint.

Dr. Geiger, of St. Joe, stated that operators have thus far failed to discriminate between abscess depending upon disease of the vertebra and simple psoas abscess. In nearly all cases of Pott's disease we are unable to detect the necrosed bones, for the disease usually affects the bodies and not the processes of the vertebra. In nearly all cases of lumbar abscess in children there is more or less disease of the vertebra. In adults, the cause, if not traumatic, is usually tubercular.

Dr. Miller, of Indiana, reported a case illustrating the difficulty of diagnosis. A tumor was situated on the right side of the eighth dorsal vertebra, and a definite diagnosis could not be arrived it until the trocar was inserted and the pus evacuated (for it proved to be an abscess). Six or eight months after, marked curvature of the spine resulted.

Dr. Andrews remarked that when but little pus is present, we have no means of knowing precisely the condition of the parts; but when there is an extensive rise of temperature, next an enlargement, chilliness, and fever, with the safe use of the aspirator the true condition can be detected. Unless such physical signs are manifested, it is not proper to cut. He did not advocate incision as the only proper method of treatment; but by it you can learn the internal topography of the cavity and the condition of the bone, so that proper applications can be made. The bodies of the vertebra can all be felt distinctly.

Wednesday, May 5.—Second Day.

Dr. Donald Maclean, of Ann Arbor, read a paper on

amputation at the hip-joint for morbus coxarius.

The point which he wished to make was that cases of hip-joint disease, which do not admit of relief by any other means, may still be saved by the extreme measure of amputation at the hip-joint. This point he sustained by the history of a case.

the nomination of officers

for the ensuing year resulted as follows:

Chairman.—Dr. H. H. Mudd, of St. Louis.

Secretary.—Dr. John B. Roberts, of Philadelphia.

Dr. J. McF. Gaston, of Atlanta, Ga., then read a paper on the

surgical relations of the ileocæcal region.

A thorough investigation of the morbid conditions of the ileocæcal region, he stated, had led him to the following conclusions:

1. That certain modifications are corrected spontaneously, or by the process of evolution under treatment.

2. In the early stage of ileocæcal disorders, medicinal or mechanical measures are advantageous.

3. That extraperitoneal punctures and incision are beneficial in cæcal inflammation, with or without fecal abscess.

4. Disorders involving the peritoneum, when not promptly relieved by general treatment, warrant exploratory opening of the abdomen.

5. Impediment of the intestinal canal or morbid accumulations in the abdominal cavity, accompanied by meteorism, call for immediate surgical interference, with laparotomy.

6. In cases of simple stenosis or malignant growths involving the ileocæcal connections, ileocolotomy is indicated.

7. Gangrenous portions of the intestinal canal necessitate resection, and either direct restoration by suturing the ends or the formation temporarily of an artificial anus.

8. Operative measures in ileocæcal derangements should not be delayed until the physical powers have become prostrated, but resorted to while they are in a capacity for reaction of the vital forces.

Dr. Henry H. Smith, of Philadelphia, opened a discussion of the question,

what is the proper treatment of penetrating wounds of the abdomen?

Among the marked changes of surgical doctrine noted in the present century, none is more striking than the opinions held by many in regard to the development and results of peritonitis after injuries that involve that membrane. He reviewed the history of his subject, and concluded by saying that, admitting that this operation may be correct in certain cases, it is important to remember that when it is performed the incision should be on the line of the linea alba, and free enough to explore the injured region; that a clear and decided statement should be made by the surgeon to the patients or his friends of the very serious nature of the wound, and uncertainty of the result; under an anæsthetic; with the caution and technique pursued in laparotomy for the removal of tumors, and with the knowledge that in suits for alleged malpractice the lawyer is sure to charge death on the surgeon rather than on the original wound.

Dr. Watson, of Jersey City, said that all will admit that success depends more especially upon the case than upon the operation itself. During his service in the late war, he thought he could safely say that not a single recovery occurred in cases in which a penetrating wound of the abdomen was produced by a Minie-ball or other missile. If the abdominal wall be penetrated, the wound should be examined immediately. It is frequently impossible to determine whether the intestines have been opened or not. If opened, but one course can be pursued. Unless operative interference be adopted the patient will certainly die, and a large proportion of cases, however treated, will die. In cases of penetrating wounds, but little danger is added, by the operation, to that which already exists.

Great danger is to be apprehended from septic infection. This it is our duty to prevent by adhering strictly to the commands of aseptic surgery.

Dr. Gregory, of St. Louis, did not think that the question of laparotomy in penetrating wounds of the abdomen was definitely settled. He had seen a number of such cases recover without special surgical interference. The question pivots upon the symptoms manifested. If they are not urgent, there is better promise of success without than with operation. It is better to wait until dangerous symptoms present themselves. Circumstances that warrant an exploratory incision are extremely rare. He would not think of making an exploratory incision in a case of simple intestinal obstruction.

Dr. J. B. Hamilton, of the U. S. Marine-Hospital Service, related the history of two cases. The first was that of a young woman, with a wound of the abdomen produced by a pistol-ball; temperature not elevated, and no apparent reason for surgical interference. A consultation of hospital surgeons was called, and it was decided that there was no immediate indication for operation, and that the case should be left to nature. The temperature, on subsequent examination, was found to be little less than normal, certainly an unfavorable symptom. She died on the fifth day. Autopsy disclosed five wounds of intestine, with some extravasation.

In a second case, with the consent of the patient, he opened the abdomen two and a half hours after the infliction of the injury. Eleven wounds were found in the small intestine and two in the colon. The patient recovered.

We cannot expect as good results from gunshot wounds of the abdomen as from ovariotomy, since there cannot be that perfect cleanliness which is possible in ovariotomy. It has been claimed that traumatic inflammation is limited. In the woman who died, extensive inflammation of the entire intestinal tract was present. If the operation be performed immediately, the presence of inflammation is a satisfactory aid in locating the seat of injury. By the line of congestion the location can be well determined. The bowel above and below the site will appear white and clean, and if the operation be deferred three or four days, an important and essential guide will be lost. Unless performed late, the operation will prove a success.

Dr. Kinloch, of Charleston, remarked that he was an advocate of active interference in gunshot wounds. He had been the first to open the abdomen immediately after a gunshot wound, and he was the first to free the bowel from the adhesion formed at the site of an artificial anus, reunite the ends of the bowel and rescue the patient from the jaws of death. But he had met with a case in which he discovered seven or eight wounds of the intestine. There was no fecal effusion. The operation was performed by candle-light, and under the belief that it was called for immediately. Diligent search failed to discover further openings. The patient died, and two openings were found, with signs of extension of traumatic inflammation. He would like to believe the doctrine that the inflammation was limited. It practically extends enough to kill the patient.

Thursday, May 6.—Third Day.

Dr. R. Harvey Reed, of Mansfeld, O., read a paper on

some of the complications of strangulated hernia,

in which he confined himself to a report of some of the complications which may arise, and illustrated them by a few cases.

Dr. Charles A. Todd, of St. Louis, then presented a paper entitled

how the iliac arteries act as valves upon the venous flow into the inferior vena cava.

The common iliac veins at one point lie between the right common iliac artery and the bone, the vessels being bound together by the firm pelvic fascia. This is no indifferent arrangement, but accomplishes a most important end, viz., to supply the place of a valve in the great abdominal vein and just where such a support is most needed, at the bottom of the column of blood, and at the mouths of its primary branches, the common iliacs.

Dr. Chr. Fenger, of Chicago, then read a paper entitled

osteoplastic resection of the foot; excision of the heel as devised by Wladimiroff and Mikulicz.

Dr. Maclean, of Michigan, remarked that the question arises whether the operation advocated in the paper is a safe, conservative surgical procedure. He was inclined to doubt it if it be compared with Pirogoff's operation. It is difficult, uncertain, and unsatisfactory. In the osteoplastic operation there are two dangers, the return of the disease, and obstinate sinuses. He had performed Syme's operation upward of thirty times and obtained good results in all but one case, in which the disease was of syphilitic origin. By an amputation we get rid of the trouble in a short time, and are certain of the result.

Dr. J. M. Barton, of Philadelphia, then made some remarks on

vertical extension in fractures of the femur in children.

The treatment of fracture of the femur in children has always been attended with great difficulty. The fragments are so short that they are not readily grasped by the dressings, and the thigh is usually so comparatively large and soft, that the extremities of the fragments are, as a rule, with difficulty maintained in position. None but the most firm and secure dressings will be maintained, as all the efforts of the sufferer are directed to their removal. The dressings are soon soiled by the discharges and the frequent removals interfere with the process of repair. The displacement of the dressings by the patient causing injurious pressure, and the uncertainty which the surgeon feels regarding the condition of the limb, necessitate frequent examinations, especially when the child gives evidence of discomfort. The disappointment occasioned by these dressings, is perhaps best shown by the fact that St. Bartholomew's Hospital reports for 1867 show that Messrs. Paget and Collender treated many cases of fracture of the thigh in children without splints, all apparatus being dispensed with, the child being placed on a hard bed with the broken limb, after it is set, bent at the hip and knee and laid on its outer side.

The plaster dressing is valuable in these fractures, and as usually applied with short splints around the femur, and a long splint reaching from the axilla to below the foot, thoroughly covered with plaster, bandaged and either varnished or covered with oiled silk, to protect it from the discharges, has often given admirable results.

A method of treating fractures of the femur in children by vertical extension, is described and claimed as original by Bryant. But few surgeons in this country have had any experience with this method, and the speaker, therefore, felt warranted in reporting five cases treated by this method. Bryant places the limbs at a right angle with the pelvis, fixes them by a light splint and then they are hoisted upward and fastened to a hook or bar above the bed. This has been slightly modified, substituting counterpoise weights for the simple fastenings.

Among the cases he reported that of a small child, in which he tried the plaster dressing which had in previous cases served his purpose ,but in a few days he was forced to remove it and substitute this method. The usual adhesive plaster carried well above the knee, the same as is used in making extension in adults in the ordinary method of treatment, was applied to each limb, to the sound as well as to the injured one. After the dressing had become firm, a light wooden frame, extending across the bed, and about four feet above it, was placed in position. It consisted simply of two uprights, one on each side of the bed, and a light bar connecting them. In the lower edge of the transverse bar connecting them four iron pulley wheels had been fastened, two about the middle a few inches apart, and one at each end close to the uprights. The limbs of the child were elevated at a right angle with the rest of the body, the cord from one of the adhesive plasters on one of the limbs was carried through one of the middle pulleys, and the other was carried in a similar manner through the other side. The heaviest weights were attached to the injured limb, and only enough to the sound limb to keep it fully elevated. The fracture came immediately into good position, and thirty-five days afterward she was discharged entirely cured, without either shortening or deformity of the limb.

DR. GRAHAM, of Chicago, was convinced of the efficacy of this method of treatment. He had employed a similar method for two or three years, but a simpler apparatus. A plain pulley in the ceiling over the bed is all that is necessary, and the entire apparatus can be placed in position within fifteen minutes. His experience has been most satisfactory.

DR. LINK, of Indiana, described a method which had proven very successful in his hands. He flexes the leg upon the thigh, rotates this outward, whereby all the muscles become much relaxed, and, by bandaging, all necessary fixation is obtained. The spasm is relieved and the bone drops into its natural position. By this plan, he had not a single deformity to report.

DR. WM. T. BELFIELD, of Chicago, read a paper on

DIGITAL EXPLORATION OF THE BLADDER, WITH A REPORT OF TEN CASES, INCLUDING FIVE VESICAL TUMORS AND FIVE CASES OF PROSTATOTOMY.

By an incision from the perinenm into the membranous portion of the urethra the exploring finger can be introduced at a point corresponding to the location of the internal meatus, and the bladder is thereby rendered accessible. This method of exploring the bladder in the male by means of perineal urethrotomy was brought prominently before the profession as a systematic means of diagnosis some three years ago by Sir Henry Thompson and Mr. Whitehead, and often affords the only means for the recognition and relief of obscure vesical disease. By it the surgeon is also able to differentiate between disorders of the kidney and the bladder when all other diagnostic means, even including the microscope, have failed, and he can often relieve a painful condition that has long been blindly and unsuccessfully treated under the comfortable and comprehensive designation of "cystitis."

During the past eighteen months he had made a digital exploration of the bladder by perineal urethrotomy in nineteen adult males. In seven cases the exploration was incidental to the performance of membranous urethrotomy for stricture, and afforded no particular information, in the remaining twelve cases the operation was made as a means either of diagnosis or of treatment, or of both.

The operation should never be performed until the bladder has been accustomed to complete evacuation by catheter or otherwise. If, in consequence of a tight stricture or prostatic obstruction, the bladder is much hypertrophied, membranous urethrotomy is dangerous, not from a probability of urinary extravasation, but simply because a cystopyelitis of more or less gravity usually follows the sudden removal of the accustomed high pressure in the bladder. Therefore, before the bladder is explored in a case of tight stricture, the organ should be gradually accustomed, in the course of weeks, to complete evacuation, the stricture should be enlarged, or the prostatic obstruction should be overcome by the habitual use of the catheter until all residual water is gradually withdrawn.

DR. ROBERT NEWMAN, of New York, then read a paper on the

GALVANOCAUTERY IN DISEASES OF THE PROSTATE, BLADDER, AND URETHRA.

He exhibited and demonstrated "The Galvanocautery Sound," for the radical cure of an enlarged prostate gland. His instrument consists of a smooth metal catheter with a fenestrum at the end of the curve, in which is placed a platinum wire. In the interior is the mechanism for heating, which is done by a galvanocautery battery. This instrument is introduced into the urethra, so that the fenestrum is held against the enlarged prostate, which is then cauterized in an instant by the galvanocautery. The instrument is light, and in size equal to a No. 18 sound, French scale. The instrument and the battery must be regulated to a fixed potential for the work to be done, and so adjusted that failure is impossible. These applications are repeated at short intervals, until a cure is effected by shrinkage of the tissues. The galvanocautery must be applied lightly, the duration of the heat lasting only an instant, at most not longer than a few seconds. The advantages of this method are, the operation causes no pain or hemorrhage, and patients are not detained from their business on account of the operation itself.

Adjourned.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, May 10, 1886.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

DR. GERSTER read a paper

ON THE ADVANTAGES OF SUPRAPUBIC LITHOTOMY, WITH A CASE.

Since modern surgery has more and more succeeded in extending the application of antiseptic principles to the oral cavity, rectum, and the bladder, epicystotomy has been reclaimed from undeserved neglect. Germany and Austro-Hungary have especially contributed a respectable series of successful cases, demonstrating that many of the chief objections to this procedure have, by dint of improvements of the method, lost most of their weight. It is interesting to note that the last and most weighty opponent of this method was Sir Henry Thompson, a countryman of the brothers Dr. James Douglas and Mr. John Douglas, who, in 1717 and 1718, first demonstrated on the cadaver and successfully performed on the living subject the operation, as the venerable Cheselden informs us in his excellent little treatise *On the High Operation for the Stone*, published in 1723, at London.

Viewing the more recent literature of the subject without prejudice, it must be acknowledged that the range of the indications for the performance of epicystotomy had been until recently unnecessarily narrow. The main objections raised were two: first, the difficulty of its performance, especially in adult subjects; which refers principally to the danger of injuring the peritoneum. Secondly, the difficult after-treatment, involving the knotty question of suturing the bladder or choosing the open treatment instead; and, finally, the avoidance of urine-infiltration and its consequences.

Garson and Peterson have shown that distention of the rectal pouch by a suitable soft rubber bag filled with water when in position, will raise a full bladder of an adult subject sufficiently above the level of the symphysis pubis, to permit a free incision of six centimetres in length into the organ, without the least risk of cutting the peritoneum. Willie Meyer, lately of Bonn, at present of this city, reported in 1884, in *Langenbeck's Archiv* forty-one cases of suture of the bladder, sixteen of which were successful; in seventeen cases suppuration followed, but ended in cure. Eight patients died in consequence of the operation; one of erysipelas, and seven of septicæmia. The results reported since by Bergmann, Antal, and others have much improved, which may be undoubtedly ascribed to a more careful selection, all cases accompanied by septic processes being rejected and treated by the open method. The open method, however, as advocated and practised by Dr. Trendelenburg offers the greatest safety as regards avoidance of septicæmia due to urine-infiltration, phlegmon, or erysipelas. An essential part of this is the semi-prone posture of the patient to be observed after the operation. In this position not a drop of urine can be retained in the bladder, but it must escape through a soft drainage tube suitably attached.

The enormous advantages of epicystotomy in cases where an exact exploration of the bladder by touch and sight becomes necessary, need not be dwelt upon. The exact diagnosis of the more intimate relations of one or more encysted stones and their removal; the staunching of rebellious cystic hemorrhages by ligature or the cautery: the diagnosis and safe and complete removal of cystic tumors will be rational and safe processes even in cases of a very much enlarged prostate, instead of being haphazard, dangerous, and often incomplete and unsatisfactory endeavors, as they frequently must be, if the perineal section be exclusively employed.

Not wishing to take up too much time, I refer for a closer study of the merits of the question to the lucid and very interesting paper of Dr. Meyer, alluded to in the *Arch. f. klin. Chir.*, vol. 31, p. 494, which contains abundant casuistic material to bear out every statement made therein in favor of the operation.

I deem it proper to bring the subjoined case to your notice, although it terminated fatally, first on account of its inherent pathological interest, and chiefly because it was marked by perfect safety and ease in exposing and incising the bladder with hardly any loss of blood, and the facility with which the stones could be grasped and extracted under the guidance of the eye from bladder and diverticulum.

The history is as follows: Martin Gyr, a Swiss laborer, fifty years of age, was admitted to the German Hospital on April 8th. He stated that he had been suffering from difficulty of micturition since more than ten years, having had no treatment whatever, until within a few days of his admission, when a cystic stone was detected by Dr. Meyer, at the German Dispensary. The usual symptoms were observed of the most pronounced character. The patient could not retain more than an ounce of water, and had to urinate every fifteen minutes by day and night. Examination of the alkaline urine gave evidence of intense cystic catarrh and of pyelo-nephritis, casts and pelvic epithelia being found. The filtered urine contained a considerable amount of albumen.

The patient presented an abject picture of emaciation, pain, and suffering, and was delighted at the possibility of getting relief by an operation. Slight elevations of temperature were observed every evening. Physical examination demonstrated a normal condition of the internal organs excepting the kidneys and bladder; anæmia with rapid and rather feeble pulse. The stone-searcher established the presence of stone in the bladder; but fearing a possible reaction, no extended examination and measuring of the stone were insisted upon. It was clear, however, that the much-contracted bladder contained either a single large, or a number of smaller stones By introducing the finger into the rectum, a rather massive protrusion of a hard body toward that organ could be felt. The patient was made comfortable by the free administration of opiates, and all endeavors were employed to improve his general condition, by abundant stimulation and food.

In weighing the admissibility of an operation, the wretched state of the patient made it clear that any operative interference would be fraught with unusual danger from shock; yet in view of the fact that longer delay was inadmissible and that, unrelieved, the patient would have to succumb soon and certainly, it was decided proper to offer him a chance of recovery, however

slender, by the operation. Regarding the selection of a method, it had to be borne in mind that a prolonged anæsthesia, such as litholapaxy would necessitate, was inadmissible in this case. A grave objection to any one of the perineal sections was that the unavoidable hemorrhage, the amount of which varies considerably in different cases, can never be estimated beforehand, and is occasionally serious. The high operation was naturally thought of: First, because it would permit bloodless access to the bladder; second, because it would permit rapid completion of the extraction of the stone or stones; and finally, because it would secure perfect drainage. The question, which anæsthetic should be employed, was decided in favor of chloroform, on account of the danger that the administration of ether would entail in the presence of the renal condition.

On April 12, the patient having been brought under the influence of chloroform, a soft rubber bag was introduced into the rectum, and was distended with about 500 c.c. of tepid water. After this the bladder was filled with 200 c.c. of tepid borosalicylic solution. A longitudinal incision was carried through the integument and linea alba down upon the transversalis fascia with minute loss of blood, commencing at about three inches from, and extending downward to a little beyond the symphysis. The fascia transversalis having been severed, the peritoneum became exposed to view, and doubts were entertained about the possibility of now incising the bladder. Thereupon it was decided to inject 100 c.c. more fluid into the bladder. While this was done, it could be distinctly seen, how the bladder rose up from behind the symphysis, pushing before it the reflected fold of the peritoneum marked by a clearly defined transverse depression. An incision of an inch and a half being made into the bladder, its contents escaped. The edges of the incision were drawn apart, the remnant of the borosalicylic solution was mopped out, and thereupon the presence of more than one stone could be seen and felt. First, an ovoid, smooth, hard stone was grasped and extracted. After this a second rather rough, very hard stone became visible, which was not freely movable as the former, but seemed to be attached somewhere on its posterior face, and yielded only after being forcibly rotated. On inspection, the freshly broken off surface of a stalactitic projection was seen on the posterior side, indicating that a continuation had existed, projecting either into a ureter, or into a diverticulum. This second stone showed two facets: a large one corresponding to the round, smooth stone, first extracted, and another smaller one of apparently recent formation. On introducing the finger into the bladder, a conical stone was felt to project from a diverticulum situated posteriorly and to the left side, the site of this corresponding to the resistant tumor felt in the rectum. The index finger was cautiously inserted into the orifice of this diverticulum, which was felt to yield to this gentle dilatation. A forceps grasped and extracted the stone easily from its bed. It was clear that another stone remained to be extracted; but the patient having been under the influence of the anæsthetic for twenty minutes and his pulse becoming thready, it was deemed imprudent to continue further search. As it was intended to leave the incision open, the extraction of this remaining stone, it was thought, could be easily accomplished at the first suitable occasion. A number of camphorated ether injections were administered hypodermically and the patient was put to bed. Previous to this a T-shaped drainage tube, prepared according to the directions given by Trendelenberg, was inserted into the bladder, and another drainage tube was placed into the bottom of the diverticulum. The position occupied by the patient in bed was semiprone, his left hip resting upon a ring-shaped air cushion, his knees being drawn up, and his back being supported by a number of pillows held up by the back of a chair. The skin of the belly was freely anointed with vaseline and a pus-basin was placed underneath the projecting ends of the drainage tubes from which urine was seen to escape in driblets. Hot bottles and stimulants were used, but in spite of the insignificant loss of blood, and of the small quantity (ten grammes) of chloroform used, the shock of the operation proved to be too great. He rallied three or four times, to relapse into a collapsed condition, and died five hours after having been placed in bed.

This not wholly unexpected result of the operation proves that the resistance of the patient had been lowered to such an extent, that even this mild and bloodless procedure led to a fatal termination, and that any other operation, such as lithotrity or a perineal section, would have caused death more speedily. Further, it seems to be clear, that in this case an extraction of the stones from the diverticula by the lower operation of lithotrity, could not have been accomplished.

On post-mortem examination the fourth stone contained in a smaller diverticulum was removed. It was seen then that its detection and extraction could have been easily accomplished. The aggregate weight of the four stones was fifty-one grammes, the heaviest being the round smooth stone extracted from the bladder itself, weighing twenty-two and a half grammes; its longitudinal diameter being three and a half centimetres, its transverse diameter two and a half centimetres. The next in weight (fifteen grammes), was a pear-shaped stone removed from the larger diverticulum, its length being four and half centimetres, its thickness three centimetres. Its apex, which had projected into the bladder, showed an oblique facet corresponding to the smaller facet of the other stone found in the cavity of the bladder. The third stone just alluded to as found in the bladder, was irregularly shaped, having two facets and a stalactitic fracture—surface about half a centimetre in diameter. This weighed ten grammes, and was apparently one with the fourth, the smallest stone found in the second diverticulum, which weighed three and a half grammes, was pear-shaped, and was two and a half centimetres long and one and three-quarters centimetres wide. All the stones show, where they have not been worn smooth, a crystalline surface of whitish color. They consist of alternate layers of carbonate and of oxalate of lime, the latter substance preponderating. In studying the positions and relations of these stones it seems almost certain that there were originally only two present; the largest smooth one being the oldest. The remaining stones must have been originally one body, the main part of which was situated in the bladder, and gradually sent out two pear-shaped projections, each of which was found to be lodged in a diverticulum of corresponding size. The larger one, the presence of which could be felt before the operation by touch through the rectum, must have

been broken off some time previous to the operation. The fractured surfaces, preserving apposition, became worn into facets. The peristaltic motion at defecation may have played an important part in the production of this phenomenon. The post-mortem examination revealed a normal urethra, enormous concentric hypertrophy of the bladder, the two diverticula above described within its posterior wall, and very much distended ureters. The latter resembled infantile small intestines, their width varying between one and three centimetres, the thickness of their walls also varying to a considerable extent. The greatest amount of distention was noticed in that part of the ureters lying next to the bladder. Both kidneys were somewhat enlarged, their capsule could be stripped off very easily, color pale, calices and pelvis much thickened and dilated, the kidney tissue in an advanced state of fatty degeneration.

DR. WEIR thought there was some risk in dilatation of the bladder. Three cases have been reported by Pousson in which the bladder was dilated after the rectum had been distended by the injection of 400 grammes of water, 200 grammes were then introduced into the bladder, and the result was a rupture of that viscus. In two of these cases the operation was proceeded with, the prevesical tissues being found infiltrated with fluid, but it did not interfere with the ultimate success of the operation. In the third case it was found that the bladder instead of rising, subsided after a certain amount of fluid had been introduced; an additional 200 grammes were then thrown in without any distention of the bladder, whereupon the operation was abandoned, but the patient died within forty-eight hours. In the first operation the rupture was not found; but in the second case it was. Now, in this operation, should he undertake it, as he expected to do to-morrow, the question is, whether after dilating the rectum he should throw less than 200 grammes into the bladder. He thought as soon as the bladder rises above the symphysis pubis we should stop; he should like to know how much the bladder resisted.

DR. GERSTER said that is a very important question. The rectal distention suffices to keep the bladder high up so that we can see the opening of the ureters and urethra, so that if hemorrhage occurs we can safely and intelligently grasp the vessel and ligate it, or stop the hemorrhage by some good surgical procedure. He believed that this method is especially valuable in these complicated cases.

DR. WEIR said that Sir Henry Thompson has advocated and practised in eight cases this open incision as being all sufficient for large calculi and tumors, even without the aid of drainage tubes.

DR. GERSTER was glad to hear of this remark of Sir Henry Thompson, as but a year ago he said that the perineal section was all sufficient.

DR. MARKOE inquired what was the covering of the stones after they had lodged in the diverticulum. Was it muscular?

DR. GERSTER replied that there was a muscular tissue outside and also a muscular ring surrounding the orifice of the recess, which is capable of dilatation.

DR. WYETH was consulted in one case in which an ovariotomy was being performed, and suggested that the incision then being made was very near the summit of the bladder, when suddenly there was an escape of urine into the peritoneal cavity; there had been no distention of the rectum, but he could see the floor of the bladder, and he passed his finger into it and had there been any stone there he could have detected it with facility. After the ovariotomy was completed the edges of the bladder were brought up and stitched to the wound, and they healed without further trouble.

DR. ABBE remarked that, as to Dr. Weir's idea of injecting less than 200 grammes into the bladder, there is danger of getting too small a space for operation between the symphysis and reflected peritoneum. And it has been found that after passing a certain point, say 200 grammes, in the bladder distention, an additional hundred gives proportionately much more increase of suprapubic space than did the previous hundred.

DR. J. C. HUTCHISON asked Dr. Gerster whether, in his studies of the literature of this subject, he had found cases of urinary fistula following the high operation for stone, where the wound had not closed entirely?

DR. GERSTER replied that there are cases on record in which that result has been noted. He remembered one case in which the fistula was caused by extensive sloughing of the bladder wall and the abdominal covering; there was afterward a large and extensive cicatrix, but the fistula remained.

DR. HUTCHISON had a case under observation now, a patient, sixty years of age, who had cystitis caused by an enlarged prostate. He was taught by his surgeon to introduce a catheter, which he did several times a day. On one occasion the instrument broke off in the bladder, and he entered a New York Hospital to have it removed. Epicystotomy was done, and the fragment of catheter removed, leaving a fistulous opening at the upper part of the wound, through which all the urine had been discharged since the operation. Eight or ten months ago, when he came under Dr. Hutchison's observation, he was suffering greatly from spasm of the bladder. He explored the prostatic urethra through an opening made in the perineum which allowed him to divide a prostatic barrier which extended across the base of the gland. A large drainage tube was introduced, the upper fistula gradually closed, and the spasm subsided.

The case is still under treatment, and Dr. Hutchison mentioned it now merely to call attention to the fact that urinary fistula is one of the accidents that may follow the suprapubic incision into the bladder.

DR. WEIR presented a cyst which he had recently removed from the thigh of a young woman, twenty-four years of age, who had suffered from it for some ten years. She had complained of pain in the femoral region, and had worn a truss for the past ten years, and also reported that the mass had twice been strangulated. The tumor did not diminish in size at night, nor did it increase in size suddenly on rising, although it had augmented in size of late years. On examination he found below Poupart's ligament a mass some five or six inches in diameter, which was dull on percussion, and without impulse on coughing. On grasping it with the hand it did not give that peculiar irregular sensation which an omental mass would give, and yet on pressure the bulging was just as if coils of intestine were underneath. It was uncertain what it was. The possibility was considered that it might be a fatty tumor; but when it was cut down upon, it looked more and more

like coils of intestine, until the sac was arrived at, when, through a minute incision, clear fluid escaped; this opening was closed to preserve the cyst entire if possible, and it was finally dissected out entire, except at its neck, which ran up to and through the femoral ring. On seizing this neck and applying a ligature, and then dividing it, the solution was found of the case: It was a femoral hernial sac which had been so shut off by the persistent use of a snug-fitting truss, that the sac had undergone a conversion into a cyst. It contained some five or six ounces of fluid, some of which was yet in the cyst, as could be observed. Such conditions are spoken of in works on hernia, but this was the first instance in which he had seen such.

Dr. Markoe thought that Dr. Weir's memory was a little short, as he saw a case with him some years ago. One feature of the case was that there was distinct fluctuation felt all through the tumor; it was a hydrocele of the canal of Nuck, the patient recovering perfectly. He thought that case was identical with the one just reported.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, May 17, 1886.

The President, Charles A. Leale, M.D., in the Chair.

Dr. Wm. T. Lusk made some remarks on

extrauterine fœtation, with illustrative case.

The case referred to, he said, was one which presented a great many points of extreme interest. The patient was a lady residing in Wisconsin, thirty-five years of age. She had been married for fifteen years, and had enjoyed uninterrupted good health. Menstruation was always regular, but she had never had any children. In September, 1883, she missed a menstrual period for the first time, and one month later she suffered from very violent pains. Her physician, Dr. Meade, had stated that these were principally in the left side; but Dr. Lusk thought that he must have been mistaken on this point. Soon afterward Dr. Meade was absent for a time, and the patient was transferred to Dr. Barton. While under his care she had two or three attacks of paroxysmal pain, which radiated from the right side. On one of these occasions (October 27) the paroxysm lasted for two hours, the patient suffering excruciating agony, and being unable to lie down. This left her very weak, and on the 6th and 7th of November she had other attacks, which were, however, less severe in character.

She then began to improve in health. She passed two menstrual periods, and presented all the signs of pregnancy. Until the following July she did not have a single bad symptom. On June 17, however, the fœtal movements, which had previously been of the most marked character, were felt for the last time. About the middle of July she supposed herself to be in labor, and sent for Dr. Meade. On making an examination he found the uterus high up; the cervix was somewhat softened, but the pains were feeble, and without any expulsive power. He therefore left her until the following morning, and she slept comfortably through the night. The next day Dr. Meade ascertained that the uterus was empty, and that there was a tumor outside the latter. The possibility of extrauterine pregnancy occurred to him, and, under the circumstances, he called in consultation Dr. Marks, of Milwaukee, but a positive diagnosis was not arrived at.

In September, 1884, she went to Chicago and consulted an eminent gynecologist of that city, who strongly insisted that there was no extrauterine pregnancy, and made the diagnosis of cysto-fibroma of the uterus. In February, 1885, she came on to New York and placed herself under the care of Dr. Fordyce Barker, who at once recognized the case as one of abdominal pregnancy, and invited Drs. Thomas and Lusk to examine the patient. They both concurred in the opinion of Dr. Barker, and she was asked to return to New York in the following June or September for the purpose of having an operation performed, which she agreed to do.

After her return home she suffered from what her physician believed to be fever of remittent character, though Dr. Lusk doubted whether this was really the case. The condition of the fœtus, at the autopsy, however, indicated prolonged septicæmia, and there was little question in his mind that she was suffering from the effects of putrid absorption at this time. To add to the unfavorableness of her condition, she suffered first from an attack of diphtheria, and then from poisoning by ivy. In the autumn, Dr. Meade wrote, her health began to fail appreciably. The pulse became very rapid, and she had a good deal of diarrhœa, as well as suffering from nervous disturbance. Notwithstanding this, however, she went about and attended to her social duties much as usual, although losing ground all the time. Still, there were no marked symptoms which could be directly attributed to putrid absorption.

In December she was persuaded to go to Chicago and consult the same gynecologist again. He now modified his diagnosis, agreeing with that of the New York physicians; but urged the patient under no consideration to submit to an operation. He informed her that in four cases in which he himself had operated the result had proved fatal, and expressed the opinion that she would not survive an operation. He also encouraged her to believe that she was in no danger, and advised her to go South and live out of doors as much as possible. Accordingly she went to Atlanta; but during the three months that she was there she was unable to leave her room. She gradually grew worse, but succeeded in arriving alive in New York in the early spring. The change of air seemed to have a beneficial effect, and she so far improved that for a short time she was able to go down to one meal a day.

It was three or four days after her arrival that she first sent for Dr. Lusk; and when he saw her he was at once struck with the marked change which had taken place in her condition. She had a pinched appearance, and was extremely anæmic. The pulse was quick, and there was a rise of temperature every morning. There was also constant diarrhœa, or else diarrhœa alternating with constipation. Very shortly a menstrual period came on, and this was attended with the most marked constitutional disturbance. The temperature ranged from 103 to 104°. The pulse was extremely full, and there was enormous distention of the abdomen. The tumor also increased very greatly in size. The husband, however, assured Dr. Lusk that there was no occasion to be alarmed, as the same disturbances had

been noticed at previous menstrual periods, and had been successfully rallied from.

It was agreed, therefore, that she should be removed to St. Elizabeth's Hospital, and that one week before the expected time of the next menstrual period an operation should be performed; this time being set in order to allow her to recuperate as far as possible from the exhaustion incident to the serious febrile condition mentioned. Unfortunately, however, the husband's predictions were not realized, and from this time she declined steadily in health and strength. Drs. Thomas and Barker were called in consultation, and agreed with Dr. Lusk, that, on account of the exhausted state of the patient, an operation offered no hope of recovery —the chances in its favor being about one in a thousand. The idea of operating was, therefore, abandoned.

Later, the husband asked Dr. Lusk how long he thought his wife could live, and when the latter informed him that it would be impossible for her, in her present condition, to survive another menstrual period, he insisted that an operation should be performed, as offering the only possible chance (however remote) of recovery. Accordingly, on the 19th of March, much against his will, Dr. Lusk operated.

The tumor at this time occupied pretty much the entire abdomen, and seemed to be equally extensive on both sides. The incision was made in the median line, below the umbilicus; and it was noticed that the fluid from the vessels of the tissues severed was almost colorless, like serum. The abdominal walls having been cut through, the tumor was observed, with portions of the fœtus showing through. It was found to be entirely free from adhesions to the abdominal walls, and on this account the question arose whether it would not be advisable to remove the tumor entire. Fortunately, as the sequel proved, this course was not adopted; and when an incision was made into the sac, a volume of horribly fetid gas escaped. There was no fluid, except about a tablespoonful of pus. The tumor was stitched to the abdominal walls, and the greatest possible care taken to prevent the escape of any portion of the contents of the sac into the cavity of the abdomen. The sack of the fœtus was turned uppermost, and in the process of extraction both the parietal bones dropped off. The cutaneous surface was almost entirely destroyed, and all the organs were found to be shrivelled up.

Hypodermic injections of whiskey were constantly kept up, and the patient was alive at the conclusion of the operation, which lasted about half an hour, as it was performed with the most careful attention to every detail that would tend to bring about a successful result. The patient was placed in bed, and rallied fairly well. The sac was kept perfectly clear, and the temperature was normal now for the first time. For the first twenty-four hours there really seemed to be a little hope that the case would result favorably; but at the end of that time the patient began to grow rapidly worse. The pulse became very feeble, and the stomach refused to retain any food whatever. On account of the diarrhœa present, it was impossible to secure nourishment by the rectum, and she died of starvation thirty-six hours after the operation.

The autopsy was performed by Dr. H. M. Biggs, and he found the uterus in the rear of the tumor, and about the size of an ordinary virgin uterus. The Fallopian tube of the left side extruded over to the sac, and its fibres were lost in the walls of the latter. This condition Dr. Lusk considered of great interest in connection with the history. The case was, no doubt, originally one of tubal pregnancy. Later the tube burst, giving rise to the attacks of paroxysmal pains noticed; and the fœtus then developed in the abdominal cavity. Dr. Lusk thought at first that the walls of the sac were composed of tissue identical with that of the uterus, but Dr. Briggs found, on examination, that the tissue was entirely fibrous. There was not the slightest sign of peritonitis, but the sac was so strongly adherent to the intestines that it required about half an hour to separate the adhesions at the autopsy. It was therefore evident that it would have been impossible to remove the tumor entire from the abdominal cavity.

This case, Dr. Lusk said, is chiefly interesting from the fact that the patient fell a victim to what he believed to be wholly erroneous teaching. All the authorities say that these tumors should not be removed until the health begins to decline. The danger is, that if the evidences of septicæmia are not distinctly recognized, operative interference is apt to be delayed until it is too late. One, at all events, of the four patients operated on by the Chicago gynecologist referred to, as shown by the recorded history of the case, was in a dying condition at the time, and Dr. Lusk thought that if the other three were in the same exhausted state, there was no reason whatever to hope for any different results than those noted. The reason often given for delaying operative procedures is that, in the course of time, the fœtus will be very likely to be converted into a lithopædion; but statistics show that the number of cases in which this occurs is relatively very small.

The presence of the fœtal tumor in the abdomen is almost always a source of constant pain and distress. As a matter of humanity, therefore, the child ought to be removed very shortly after its death, and the physician should not wait for symptoms which indicate that the constitution is already undermined before advising laparotomy. The cases which Dr. Lusk has investigated show that nearly all the patients recover when the operation is undertaken early. In itself it is not really a dangerous procedure, and the bad results which have been noted in so many instances are due simply to the fact that operative measures were adopted only as a last resort. The development of the symptoms denoting putrid absorption is almost always insidious, and there are very few cases in which marked symptoms are presented until quite late in their history. The effect of the vicious process going on in the system is primarily in the blood, and afterward follow degeneration of all the parenchymatous organs. In the case detailed by Dr. Lusk the heart was especially affected. (The fœtus and the sac were presented for inspection.)

In marked contrast to this case was one, the specimen from which, a fœtus removed by Dr. Reginald H. Sayre, he now presented. In this instance, although there was the most intense septicæmia, the patient recovered.

DR. REGINALD SAYRE, on being called upon by the Chair, said that he had nothing to add to the history of the case, which had been fully reported by Dr. Lusk, except to say that, if the patient had been operated on before the tumor sloughed, luckily into the vagina, instead of the abdominal viscera, she would, no doubt,

have been saved a great deal of suffering. He quite agreed with Dr. Lusk as to the advisability of an early operation in these cases.

DR. E. SANDERS related the history of a case similar in character to that described by Dr. Lusk. When last seen, the patient was in good condition, although she had lost considerable flesh, and she had been advised to report herself at once should any serious symptom develop. She was a patient in the Outdoor Department of the Mount Sinai Hospital, but he had her residence, and would endeavor to see her again, with a view to considering the propriety of operating.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, May 1, 1886.

THE PRESIDENT, F. G. RODDICK, M.D., IN THE CHAIR.

EVERSION OF THE VENTRICLES OF THE LARYNX.

DR. G. W. MAJOR presented a case of eversion of both laryngeal ventricles in a male æt. twenty-seven. The case had been under observation and treatment for over two years, and showed decided improvement. A tuberculous condition was present, as evidenced by lung signs, and in a local development in the post-laryngeal wall. He referred to a case of complete eversion of the right sacculus, which had been demonstrated at the Throat Clinic of the Montreal General Hospital in April, 1884, occurring in the person of a syphilitic subject. In this case the ventricle was completely returned under treatment. Reviewing the literature of the subject, allusion was made to the fact that in the majority of the few recorded cases some dyscrasia was prominent, notably that accompanying syphilitic, tuberculous, or cancerous disease.

TUBERCULOSIS OF THE TONGUE.

DR. STEWART exhibited a woman aged twenty-eight, who had been complaining for over four months of cough, purulent expectoration, night sweats, loss of flesh, etc. Father and mother still living and in good health, but had lost a brother and sister from phthisis. When she first came under observation, three months ago, there was distinct evidence of consolidation of both apices, and this condition still continued. The patient was hoarse, and complained of pains in the larynx, and also in the throat when swallowing. Dr. Major had examined the larynx, and found a tubercular nodule about the size of a grain of wheat in the inter-arytenoid space. The tip of the tongue was superficially ulcerated to almost the size of the little finger-nail. From the centre of the ulcerated surface, a fissure extended into the substance of the tongue to the depth of about a quarter of an inch. The tissues immediately surrounding were hard and nodular. No pain on pressure nor any discharge. Shortly after the sore was noticed the patient experienced a severe pain in it. This continued to increase in severity up to the time when she first came under Dr. Stewart's care. At that time the pain was so severe that she found it almost impossible to eat or even to speak. The local application of iodoform quickly relieved the pain, but otherwise it did not seem to have had any influence over the cause of the local trouble. Lately Dr. Stewart had employed equal parts of a half per cent. of papayotin, glycerine, and water, as a local application, the object being to influence directly the tuberculous infiltration. From the well-known properties that this drug has in dissolving albuminous tissues, he thought it might be of service.

DR. STEWART looked upon the case as undoubtedly one of tuberculous ulcer of the tongue. Although the secretion from the tongue had been examined on two occasions, no tubercle bacilli had been found.

DR. MAJOR stated that he had found in this case tuberculous disease of the larynx, and spoke of the benefit of iodoform in these cases. He used it in large quantities mixed with equal parts of gum acacia. In reply to a question raised by Dr. Shepherd as to the influence of iodoform, when used as a local application, in producing pneumonia, Dr. Major stated that he had used the drug extensively for years in tonsillar and laryngeal disease, and had not encountered any untoward result.

NEUROPATHIC SKIN DISEASE.

DR. R. I. B. HOWARD exhibited a patient who had suffered for the last four years from an affection of the skin of both feet. The eruption was papillomatous in character, and was spreading slowly by its periphery whilst healing in the centre. No scar was left after healing. The parts of the feet affected were those supplied by the musculo-cutaneous nerve. The patient, a boy aged ten, also had a Pott's curvature of the lower dorsal region, and Dr. Howard suggested that this might account for the eruption.

DR. HENRY HOWARD said that although he looked upon the case as one of nervous origin, he thought it had no connection with the Pott's curvature; that the cause was not central, but peripheral.

DR. SHEPHERD looked upon the case as a form of lupus, from its long duration and its tendency to spread, and also from the fact that it did not tend to become eczematous. The fact that there was no scarring was certainly against this diagnosis, but sometimes it is very difficult to find lupus scars, especially with artificial light. He had seen a similar case cured by scraping and cautery.

DR. SMITH looked upon the case as one of ringworm and stated that he had seen many such.

DR. TRENHOLME agreed with the latter speaker.

DR. R. I. B. HOWARD, in reply, said that he himself, at first, looked upon the case as one of lupus, but from its distribution, absence of scarring, etc., he was inclined now to think the affection of nervous origin. He had brought the case before the Society in order to get a diagnosis. He thought that Mr. Jonathan Hutchinson would probably call the disease lupus. The case was certainly not one of ringworm as suggested by Dr. Smith; it had not any resemblance to that affection.

CORRESPONDENCE.

HYDROPHOBIA.

To the Editor of THE MEDICAL NEWS,

SIR: The reading of your editorial comments of the 24th inst., upon the death of Dr. Warner from the "fear of hydrophobia," has incited me to address you these lines to the effect that I am a firm believer in the notion that it is not necessary that the animal pro-

ducing the bite shall be the subject of rabies to induce hydrophobia in the subject bitten. Many cases can be referred to, quoted in the public prints, and in the experience of observers (notably the case of the Duke of Hamilton, Governor-General of Canada, bitten by a tame fox), to prove that the animal excited by fear or anger may give hydrophobia by its venomous bite.

I have been convinced of this, though only with the experience of one case. This was one of undisputed hydrophobia in a boy eight years of age, who had, childlike, punished a cat severely by shaking and cuffing it for some fancied offence, and which bit him severely upon the thumb, hydrophobia and death occurring some twelve days afterward. The cat was secured and kept by me for over four months under observation, without symptoms, was quite domestic, and could be petted without fear.

Analogy proves through the animal kingdom that the secretions (saliva) are so changed under the influence of sudden fear or anger as to become poisonous, and until we become more familiar with the pathology of rabies, we must regard all bites under such circumstances as very dangerous, and their effects not rarely due to a *fear* of hydrophobia.

Ralph N. Isham.

321 Dearborn Ave., Chicago,
April 26, 1886

NEWS ITEMS.

The Pennsylvania State Medical Society will hold its annual meeting in Williamsport on Wednesday, Thursday, and Friday next.

Reception to Dr. Holmes.—There was a large gathering at the St. George's Club, in London, on the evening of May 24th, to welcome Dr. Oliver Wendell Holmes. Among those present were: United States Minister Phelps, Commissioner Van Wagner, Consul-general Waller, Vice-consul-general Penfield, James Russell Lowell, R. B. Haldane, M. P.; Charles Russell, M. P.; Charles Palmer, M. P.; John B. White, M. P.; Consul Bret Harte; the Dukes of Argyll, Westminster, and Manchester; Lord Napier; Count Karoly, the Austrian ambassador; Sir Arthur Sullivan, Sir John Millais, Henry Irving, John L. Toole, and Thomas Power O'Connor, M. P. A reception to be given at the Liverpool Medical Institution was also arranged, but Dr. Holmes was unable to be present and it was postponed.

Death of Professor Landis.—Dr. Henry G. Landis, Professor of Obstetrics and the Diseases of Women in the Starling Medical College, Columbus, Ohio, died in this city on the 22d instant.

Tarred Floors in Garrisons.—Some months ago the floors of many Austrian garrisons were painted with tar, and the results have proven so uniformly advantageous that the method is becoming greatly extended in its application. The collection of dust in cracks is thus prevented, and a consequent diminution in irritative diseases of the eye has been noted. Cleaning of the rooms has been greatly facilitated, and parasites are almost completely excluded. The coating of tar is inexpensive, requires renewal but once yearly, and presents but one disadvantage, viz., its sombre color.

The State Medical Society of Wisconsin will meet in the city of Madison, on Tuesday, the first day of June, 1886.

The International Congress.—It is announced that Dr. A. L. Gihon, U. S. N., has been appointed President of the Section of Collective Investigation, in the place of Dr. H. O. Marcy, of Boston, who has been made Vice-President of the Section of Gynecology.

The Medical Society of New Jersey.—The one hundred and twentieth annual meeting of the Medical Society of New Jersey will be held in the Girt House, Sea Girt, on Tuesday and Wednesday, June 8 and 9, 1886, commencing at 4 o'clock P. M. on Tuesday.

The Maine Medical Association.—The thirty-fourth annual meeting will be held in Portland, Me., on Tuesday, Wednesday, and Thursday, June 1, 2, and 3, 1886.

Dr. Edward Fournié, the distinguished laryngologist and aurist, and for a long time Director of the National Asylum for the Deaf and Dumb of France, and editor of the *Revue Médicale*, died on March 24, aged fifty-three years.

Testamentary Disposition of Bodies.—The French Government has passed a law permitting persons to give their bodies, by will, to learned societies.

A Child Poisoned by the Nurse's Cosmetic.—A German practitioner being called to see a child five weeks old who was continually crying and suffering from colic, and whose skin was of a dull bluish tint, was somewhat puzzled as to diagnosis, until looking at the nurse's face, and seeing it of a brilliant white and red tint, he touched the surface, which left a greasy stain on his finger of a cosmetic rich in lead. This poisonous substance the nurse had long been in the habit of using for the purpose of improving her complexion. The cause of the child's colic being removed, and appropriate treatment adopted, a cure was effected in a few days.

The Russian Government has issued an order that the practice of massage is only to be allowed to be conducted by those who have obtained a licence after examination in the same way as those who practise medical gymnastics are licensed, and the massage must always be carried on under the orders and supervision of a medical man.

The Michigan Cremation Association has just been organized at Detroit, Mich. Articles of incorporation have been completed, and the following officers elected: President, Dr. James F. Noyes; Vice-President, Dr. Hugo Erichson; Secretary, A. N. Lowe; Treasurer, Moses W. Field. The treasurer has filed a bond of $10,000. The location of the proposed crematory has not been decided on.

Nickel-plated Cooking Utensils Dangerous.—The Supreme Sanitätsrath of Vienna, having submitted nickel and nickel-plated cooking utensils to a careful chemical examination, has decided that their use, from a sanitary point of view, is not free from serious objection.

POISONED HONEY.—At the last meeting of the Dresden Agricultural Society, a local druggist reported that in one of the neighboring honey centres the deadly nightshade grew abundantly, and that the bees had visited these flowers, and thereby incorporated in the honey sufficient poison to account for numerous and occasionally fatal cases of poisoning occurring in that region and elsewhere after use of the honey in question. He also stated that from American honey gelsemium had been extracted.

DR. DANIEL G. BRINTON, whose work on American Ethnology was recently very favorably criticised in the *Atlantic Monthly*, has been made laureate of the Société Américaine de France for 1885, and has been awarded the medal of the Society for his works on the aboriginal tongues of America.

MEDICINE IN GERMAN UNIVERSITIES.—In the German and German-speaking universities, by far the largest medical faculty is that of Vienna, which has 18 professors, 34 extraordinary professors, and 82 privat-docents, making 134 teachers; the number of students being 2307. Next comes Munich, with 13 professors, 7 extraordinary professors, and 22 privat-docents, making 42 teachers; the number of students being 1129. After this comes Berlin, with 1072 students, and no less than 100 teachers. The smallest of all appears to be Rostock, with 11 teachers, and 92 students.

NOTES AND QUERIES.

CORRIGENDUM.

To the Editor of THE MEDICAL NEWS,

SIR: In the valuable report of the discussion in the New York Academy of Medicine on the "Treatment of Diabetes" (number for April 3, 1886) I am quoted as saying that in diabetes the glycogenic function of the liver is "increased," and that we have no remedy to "check" it. Please substitute "decreased" for "increased," and "stimulate" for "check," and your report will be the best one published.

That I do not ask this correction for personal reasons will be evident when I inform you that my name appears as S. Varick.

Very truly yours,
SIMON BARUCH, M.D.

43 E. 59TH ST., NEW YORK, May 21, 1886.

RESECTION OF THE FACIAL NERVE.

To the Editor of THE MEDICAL NEWS,

SIR: I beg leave to correct a slight misprint in your summary, in your issue for to-day, of my paper before the American Surgical Association, on "Stretching the Facial Nerve." It is stated that the patient came under my care "April 1, 1880," and that the resection of the infraorbital nerve was done in June, 1884. For "1880" read "1886," which will show that I never saw the patient till two years after the resection, and so could not have done that operation, and also will explain why I only report the result up to twenty-five days after the operation on the seventh. At present, seven weeks after the operation, the result is equally satisfactory.

Yours truly,
W. W. KEEN.

PHILADELPHIA, May 22, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM MAY 11 TO MAY 24, 1886.

HUNTINGTON, DAVID L., *Major and Surgeon.*—Ordered to proceed from this city to David's Island, N. Y. Harbor, on public business connected with the construction of the present hospital at that depot, or the erection of a new one. On completion of this duty to rejoin his station.—*S. O. 109, A. G. O.*, May 10, 1886.

FINLEY, JAMES A., *Captain and Assistant Surgeon.*—Ordered for duty at Fort Buford, D. T.—*S. O. 39, Department of Dakota*, May 5, 1886.

CASTER, WM. F., *Captain and Assistant Surgeon.*—Granted leave of absence for one month, to take effect about June 1st, with permission to apply for an extension of one month.—*S. O. 55, Department of Texas*, May 11, 1886.

BANISTER, JOHN M., *Captain and Assistant Surgeon.*—Assigned to duty as Post Surgeon, Ft. Canby, W. T.—*S. O. 75, Department of Colorado*, May 8, 1886.

BENHAM, R. B., *Captain and Assistant Surgeon.*—Ordered to Department of the Platte.—*S. O. 109, A. G. O.*, May 10, 1886.

EWING, C. B., *First Lieutenant and Assistant Surgeon.*—Relieved from duty at Ft. Leavenworth, Kansas, and ordered for duty as Post Surgeon at Ft. Supply, Ind. T.—*S. O. 48, Department of Missouri* May 13, 1886.

CHERBONNIER, A. V., *Captain and Medical Storekeeper, U. S. Army.*—Granted leave of absence for four months, with permission to apply for four months extension.—*S. O. 109, A. G. O.*, May 10, 1886.

SMITH, ANDREW K., *Lieutenant-Colonel and Surgeon*, WOODHULL, ALFRED A., *Major and Surgeon*, and KIMBALL, JAS. A., *Captain and Assistant Surgeon.*—Detailed as Board to assemble at U. S. Military Academy, West Point, New York, on June 1, 1886, to examine into the physical qualifications of members of the graduating class, and the candidates for admission into the Academy.—*S. O. 119*, May 21, 1886.

ELBREY, F. W., *Captain and Assistant Surgeon.*—Sick leave of absence still further extended one year on surgeon's certificate of disability.—*S. O. 115, A. G. O.*, May 17, 1886.

WINNE, C. K., *Captain and Assistant Surgeon.*—Granted leave of absence for twenty days on surgeon's certificate of disability.—*S. O. 34, Department of California*, May 17, 1886.

KILBURNE, HENRY S., *Captain and Assistant Surgeon.*—Assigned to duty at Vancouver Barracks, Washington Territory.—*S. O. 80, Department of Columbia*, May 15, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING MAY 22, 1886.

BRANSFORD, J. F., *Surgeon.*—Invalided home, from Pacific Station.

WINSLOW, GEO. F., *Surgeon.*—Ordered June 1st proximo, to the U. S. S. "Atlanta."

HEFFINGER, A. C., *Passed Assistant Surgeon.*—Detached from the Navy Yard, Portsmouth, N. H., and ordered to U. S. S. "Atlanta," June 1st.

LAW, H. L., *Surgeon.*—Ordered to the U. S. R. S. "Wabash."

HAWKE, J. A., *Surgeon.*—Detached from U.S.R.S. "Wabash," and await orders to sea.

OGDEN, F. N., *Assistant Surgeon.*—Ordered from U S.S. "New Hampshire," and wait orders.

BAKER, J. W., *Assistant Surgeon.*—Ordered for examination preliminary to promotion.

WOODRUFF, CHARLES E.—Commissioned Assistant Surgeon in the Navy, May 17.

HENRY, CHARLES P.—Commissioned Assistant Surgeon in the Navy, May 18.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING MAY 22, 1886.

BAILHACHE, P. H., *Surgeon.*—Detailed as Chairman of Board for Physical Examination of candidates for appointment as cadets Revenue-Marine Service, May 19, 1886.

WYMAN, WALTER B., *Surgeon.*—Granted leave of absence for thirty days, May 14, 1886.

STONER, G. W., *Surgeon.*—Detailed as Recorder of Board for Physical Examination of candidates for appointment as cadets Revenue-Marine Service, May 19, 1886.

BANKS, C. E., *Passed Assistant Surgeon.*—Leave of absence extended four days, May 5, 1886.

BRATTON, W. D., *Assistant Surgeon.*—Detailed as Medical Officer Revenue Steamer "Corwin," during cruise, May 22, 1886.

PERRY, T. B., *Assistant Surgeon.*—Appointed an Assistant Surgeon, May 21, 1886. Assigned to temporary duty at San Francisco, May 22, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLVIII. SATURDAY, JUNE 5, 1886. No. 23.

ORIGINAL ARTICLES.

OXALURIA IN MELANCHOLIA.

BY G. D. STAHLEY A.M., M.D.,
FIRST ASSISTANT PHYSICIAN, PENNSYLVANIA STATE LUNATIC HOSPITAL, HARRISBURG.

IN a recent clinical lecture on melancholia, by a distinguished neurologist, particular attention was directed to the existence of crystals of oxalate of calcium in the urine of persons suffering from melancholia. Although not prepared to explain the exact relation between oxalic acid in the urine and the brain symptoms, the lecturer stated his belief that there is a distinctive and pathognomonic relationship, so that in a given case of mental depression, if a condition of oxaluria is associated with it, he considered that condition to be the determining factor, and accordingly classified the case as one of true melancholia. Clinically he finds "two sets of cases in which there is melancholia associated with oxaluria." In one class the administration of nitro-muriatic acid causes both the oxaluria and the melancholia to disappear; in the other class the remedy has no effect on either condition. In view of these convictions on his part, he thinks it "rather strange that those who have large opportunities in asylums do not follow out closely this line of clinical research."

As a contribution to this subject, it is my purpose to furnish here some statistical figures and practical inferences, based on original investigations made in this hospital. I will include in this study all the male admissions of the past twenty-six months. I cannot go back further than this, as I only began on January 1, 1884, to examine systematically urinary specimens, and to preserve a permanent record of the results obtained. Previous to that time, examinations were made only in cases where special indications seemed to suggest such a procedure, and as under such circumstances the record made was necessarily desultory and imperfect, it is practically without value in this inquiry. But the examinations I wish here to consider, are analyses of urinary specimens made for practical, clinical purposes, by means of chemical reagents and the microscope, of every male patient, in whatever bodily or mental condition, admitted from January 1, 1884, to March 1, 1886. Although a larger number of cases would probably make the study more interesting, yet I do not believe they would materially alter the results obtained, nor cast any discredit on the precision of the work here presented. As the presence of the crystals of the oxalate of calcium is always determined by means of the microscope, my paper will have to do only with a study of the urine by means of this instrument in search of these crystals, and not with what other facts may have been discovered by chemical reagents.

From January 1, 1884, to March 1, 1886, there were 172 male patients admitted into this hospital. Making general divisions, and, for the sake of brevity, not distinguishing between acute and chronic forms, these cases were divided as follows: mania, 72; melancholia, 38; dementia, 41; paresis, 18; imbecile, 3. Of these 172 admitted, 32, or 18.6 per cent., showed the presence of oxalate of calcium in their urine. Dividing these cases into their respective groups, we have the following: in the 72 cases of mania, we find the presence of crystals of calcium oxalate in 13, equal to 18 per cent.; in 38 cases of melancholia we find 7, equal to 18.4 per cent.; in 41 cases of dementia, 10, or 25 per cent.; in 18 cases of paresis, 2, or 11.1 per cent.; the remaining 3 cases were imbeciles and their urine contained no oxalates. A summary of these, places dementia at the head of the list with 25 per cent.; then melancholia, 18.4 per cent; then mania, 18 per cent.; then paresis, 11.1 per cent.; and on the whole number a percentage of 18.6. It appears from this showing, that if oxaluria is to be considered symptomatic of any one form of mental derangement, the palm must be given to dementia, and not to melancholia. It will be observed that melancholia, with its 18.4 per cent., falls somewhat short of being up to the average on the whole number, which is 18.6 per cent. In regard to the quantity of the oxalate present in each case, my examination notes credit two cases of mania, and one of paresis, with an "abundance," and all the remaining ones are marked "a few"—meaning the presence of one, two, or three crystals at most, in each microscopic field. Of these two cases of mania, one was of the subacute form, with delusions of suspicion, and produced by alcoholic excesses; the other was an acute case, and characterized by mental confusion, restlessness, and homicidal impulses; the case of paresis was typical of that form of insanity.

At the present time there are 13 cases of melancholia in the male wards, which comprise those who yet remain, of the number above given, along with others who were previously admitted. An examination of the urine of these 13 resident cases shows crystals of the oxalate in 2, equal to 15.3 per cent. It will be noticed that this is 3 per cent. less than was found to be the average on the total of the 172 cases, when first admitted, and also 3 per cent. less than was yielded by the 38 cases of melancholia as they were admitted during the past twenty-six months, thus showing that a condition of oxaluria in cases of melancholia obtains to a less extent than even the small percentage demonstrated in the first record. All these cases of melancholia are very typical in their characteristics. Of the 2 cases which furnish calcium oxalates, one has been with us for two and a half years, is sixty-eight years of age, has poor bodily health, and each day confidently expects to

be butchered in the most barbarous manner. The other man is forty-two years of age, has been with us for three months, accuses himself of all sorts of beastly practices, and incessantly bemoans his deplorable condition. The other 11 cases, which do not furnish oxalates, should theoretically feel themselves bound to do so. One is a recent case, of only one month's duration, in which the mental distress is great and the suicidal impulse prominent. Another is badly nourished, worries greatly because he is not able to pay his board, and says we are concocting a scheme for his ruin. Another, a member of our own profession, is constantly groaning and bewailing his unfortunate condition, and repeatedly asks us to telephone to his wife that preparations may be made for his funeral. Still another believes that the devil has him in full charge and directs all his movements, and he feels powerless to resist. The remaining cases are equally typical, and equally barren of oxalates.

Let us make one more analysis of the 172 cases admitted. It was noticed that, on admission, oxaluria existed in 32 of these cases. Up to the present time 15 of these have been discharged, and 17 still remain in the house. Of the 15 discharged, it is not known whether the oxaluria had disappeared or not, as no analysis was made previous to their departure. The 17 cases which still remain are divided in type as follows: mania, 7; melancholia, 3; dementia, 6; and paresis, 1. Of the 7 cases of mania, in 3 the oxalate of calcium has disappeared from their urine; their mental condition has not improved since their admission, and we do not expect them to recover. The remaining 4 cases still exhibit some oxaluria, of which number, only one, a case of acute religious mania, admitted the last week in February, we hope to restore. Of the 3 cases of melancholia, the oxalates have disappeared in all; 1 of them is convalescent, and the other 2 present a very unfavorable prognosis. Of the 6 cases of dementia, there is an absence of oxaluria in 5, and in neither is there the remotest chance for recovery. The sixth case, complicated with epilepsy, still contains some crystals, and presents no favorable symptoms. In the case of paresis, some calcium oxalate still remains; his prognosis is the customary one in such cases. Thus it appears that in a total of eleven cases, in which oxaluria had been present on admission, but subsequently disappeared, only one case is convalescent. And in a total of six cases in which oxaluria existed on admission, and still continues, only one case has any reasonable prospect of recovery.

Now what do all these figures and comparisons show? To be guilty of an Irish bull, I would say, that if they show anything, they show nothing—that is, they show nothing for the theory that there is an intimate, symptomatic, causal, reciprocal relationship between oxaluria and melancholia. Truly, as was remarked in the course of the lecture just quoted, "the relation between oxaluria and melancholia is not yet made out." Whatever relation may exist, it is so ephemeral, that in a clinical and scientific analysis the condition of oxaluria is compelled to take a subordinate position, and to be classified simply as an incidental symptom of melancholia.

As before shown, if oxaluria is to be considered as characteristic of any one form of mental disease, that condition known as dementia claims precedence, inasmuch as 25 per cent. is a better showing than 18.4 per cent. To illustrate a natural tendency of dementia to be associated with a condition of oxaluria, I will instance the case of a young man admitted into our wards nine months ago, in a state of mild mental derangement, shown principally by an expressed belief in the existence of witches. Several weeks prior to his admission, under the delusion that a certain female relative was a witch, he procured a gun and fired it at her with intent to kill. On admission, there were no crystals of oxalate of calcium in the urine. One month ago he passed into a condition of dementia, which still continues; he now has oxaluria.

When it is remembered, as Dr. Golding Bird was the first to show, that oxalate of lime is a very common urinary deposit, and that in the majority of instances the crystals form after the urine has left the bladder, by the decomposition of the urates—and when further it is remembered with what ease it may be introduced into the system by such very common articles of diet as rhubarb, tomatoes, onions, turnips, and the like, we should be very guarded in predicating the condition of oxaluria as distinctively pertaining to any one special disease. Especially should we be thus mindful, when such men as Lehmen, Bence Jones, Garrod, and many others, direct special attention to the fact that oxalates are found in very great abundance in the urine of persons in good health. These observers also attest the fact that oxaluria is by no means essentially connected with any special disease or train of symptoms.

When oxalate deposits are clinically found, and reasonable grounds appear to exist for attributing to them a pathological significance, they appear to be due either to the incomplete oxidation of the saccharine, oleaginous, or albuminous principles of the ingesta, or to increased tissue metabolism, or in dyspeptic cases where a catarrhal condition of the mucous membrane disposes to fermentation and an excessive formation of acids, or where calculous deposits of dumb-bell crystals are found, having their origin in the mucus of the urinary passages. In these conditions, regardless of the distinctive pathological type of the disease we may have in hand, must we look for an intelligent explanation of the presence of calcium oxalate in the urine. We cannot predicate it of any class of diseases, or of any one individual complaint. No doubt, in mental disorders, the condition of oxaluria obtains as frequently, and perhaps more so, than in any other class of affections. The digestive powers of the insane are often very imperfect, especially in cases of melancholia and acute dementia, thus furnishing good pathological conditions for the production of oxaluria. It is true that many of the insane eat ravenously and largely, but it is not always because of the vigor of their digestive and assimilative functions; they are often of costive habit and have feeble assimilative powers. Then, again, the mental distress which they often undergo, influences many of the vital functions, and also very perceptibly hastens tis-

sue metamorphosis, thus furnishing another important element in the production of oxaluria. The influence of mind over matter is a very mysterious but palpable fact, and the subtle chemistry of life, in action and reaction, demonstrates abnormal tissue waste nearly as frequently as it does normal tissue growth.

There was a time when the simple presence of phosphates in urine made the medical attendant look mysterious, and whisper ominously concerning a central nervous lesion. Likewise, a prophetic leer, indicative of the tomb, would mantle his features when with a little nitric acid and heat he would elicit albumen, or by applying his spirit-lamp to an acid urine, treated with caustic potash, he would get the canary, or brown, or black color indicative of sugar. Such unqualified inferences and gloomy prognoses are no longer permissible, and it is to be hoped that no clinician, in these days of good microscopes, will be so bold as to attempt to establish any very definite connection between oxaluria and melancholia. Let the incidental juxtaposition be estimated at its real value, but let us not unduly magnify a coincidence. And, when we find cases of melancholia associated with oxaluria, let us not be guilty of perpetrating an irrational division of the disease into two varieties, based on the fact that in the one case nitro-muriatic acid dissipates both the diathesis and the disease, and that in the other it does neither. Such a division is most irrelevant and unscientific. As well divide all headaches into two varieties—the first constituting those which are relieved by inhalations from the family camphor bottle, and the second, those which are not influenced by this procedure. Clinically it is found that remedies administered for the purpose of improving the general health, of promoting the oxidation of ingested food, and of strengthening the digestive and assimilative powers of the primæ viæ, will lead to the diminution or extinction of the oxalate deposits. And when our patient is again restored to health and happiness it will be because those abnormal systemic conditions which produced the oxaluria have been removed, and not because the oxaluria *per se* no longer exists. Cold bathing, exercise, attention to diet, the mineral acids, bitter tonics, iron, now and then a gentle purgative, have all been found efficacious in treating the condition incident to the presence of calcium oxalate.

A ministerial friend, whose Sabbath labors always entailed great mental anxiety and considerable physical fatigue, was accustomed to go fishing all day on Monday, in this way recuperating his mental and physical powers, and getting rid of the octahedral oxalates which excessive tissue waste had produced. It is a new thought to me, that being overworked on Sunday, and, according to orthodox practice, feeling "blue" on Monday, with an incidentally associated exhibit of a few crystals of oxalate of calcium in his urine, he was, therefore, for that day at least, the victim of "a form of melancholia." Truly the number of his attacks and recoveries have been phenomenal, and he still lives. A few years ago, feeling somewhat fatigued and below par, for want of sufficient out-of-door exercise, my own urine yielded an abundance of crystals of oxalate of calcium. A very short vacation, *minus* nitro-muriatic acid, sufficed to restore me to my usual vigor, and to dispose of the oxalates at the same time. My attack of melancholia was quite brief.

I am prepared to admit that oxaluria exists with some frequency in cases of mental disease, and that as a symptom it has its importance, and may help to determine the proper treatment. It does not seem, however, that it should be considered of greater importance when thus associated, than if it were found in connection with diseases not mental. And further, it is surely untenable to believe that it sustains any peculiar or symptomatic relationship with that form of mental disease known as melancholia. Although oxaluria and melancholia may, and sometimes do occur synchronously, they cannot rationally be credited with such an important relationship as cause and effect. As we have seen, dementia has much stronger claims to such consanguinity than has melancholia, and yet we cannot fairly predicate it of either. Let us not claim for oxaluria too high a place in the etiology of disease. It has its importance as a symptom, and often affords us great aid in diagnosis and in treatment, but let us withhold from it parental powers until, with accredited authority, it can lay just claims to such a distinction.

A FEW SUGGESTIONS FOR THE PREPARATION OF MILK FOR INFANTS.

BY JOHN M. KEATING, M.D.,
OF PHILADELPHIA.

AT this time of year the subject of infant diet becomes a very important and interesting one. At the recent Sanitary Convention held in this city under the auspices of the Pennsylvania State Board of Health, I advocated the use of cow's milk prepared so as to resemble closely woman's milk as the best form of diet for at least the first three months, urging at the same time that a certain amount of a soluble salt of lime should always be added to an infant's food to counteract the great tendency to rickets which exists in all bottle-fed, and, indeed, in many of the nursed children of the day.

Let us take one of the given analyses (Percy) of cow's milk, that of an ordinary mixed dairy:

Water	86.67
Butter	3.20
Sugar	4.20
Casein	5.30
Salts	0.62

If this is diluted with *three* times its bulk of water, it will give us the following:

Water	96.70
Butter	0.80
Sugar	1.05
Casein	1.33
Salts	0.16

There seems to be some difference of opinion in regard to the quantity of casein and sugar (per cent.) in human milk. In every young infant it is better to have the minimum quantity as a basis to begin with, so that by diluting the milk as above we reach, ac-

curately enough for practical purposes, the percentage as given by A. V. Meigs, viz.:

Water	87.16
Butter	4.28
Sugar	7.40
Casein	1.04
Salts	0.10

If to a *four* ounce mixture composed of *one* ounce of ordinary milk and *three* ounces of water, we add *one* ounce of ordinary cream (about fourteen and a half per cent. of butter), and about eighty grains of sugar of milk (a level teaspoonful),[1] we will get a result which closely resembles woman's milk, though containing less casein and more sugar than most authorities give as the result of their investigation. Still, for very young infants this is an advantage rather than otherwise. As the child grows older, say two or three months, the amount of casein can be increased as follows:

Take *two* ounces of ordinary fresh milk, add *two* ounces of water: the following will be the result:

Water	93.38
Butter	1.60
Sugar	2.10
Casein	2.65
Salts	0.31

Now, add two tablespoonfuls of ordinary cream of good quality and a heaping teaspoonful (about 100 grains) of milk-sugar. Cream itself contains about three per cent. of casein. But I have insisted that there must be a certain amount of lime added to the mixture, and I do not think that lime-water always serves the purpose required, even if it be given in large amounts. I prefer the soluble *lactophosphate*, and have used it largely with success for some years. To make this matter simple and to facilitate the carrying out of instructions, I have had compressed *tablets* (*Milk Food Tablets*) made, each containing:

Sugar of milk	26 grs.
Calcis lactophos.	$\frac{1}{6}$ gr.
Calcis. carb.	$\frac{1}{12}$ gr.
Sodii bicarb.	$\frac{1}{12}$ gr.
Potass. bicarb.	$\frac{1}{12}$ gr.
Sodii chloridi	$\frac{1}{6}$ gr.

These can be made up in large quantities, put in cans or wide-mouthed bottles, and are to be used as follows:

To prepare the bottle for a child about a month old or younger, take three ounces of boiling water and stir in one ounce of ordinary milk; to this add three tablets and dissolve thoroughly; place the mixture in a nursing bottle and add two tablespoonfuls (one ounce) of good, fresh cream: shake well, and give to the child at about the temperature of the body.

For a child two or three months old, prepare the bottle as follows:

Take two ounces of water (boiling) and stir into it two ounces of good, fresh ordinary milk (if the child is of a constipated habit, they need not boil together); then dissolve into the mixture four tablets, pour this into the nursing bottle, and add two ounces of fresh ordinary cream; shake well.

If the child's stools contain a mass of curds, showing deficient digestion, it would be well at once further to dilute the milk. Should this not be sufficient a small quantity of malted food, such as Mellin's or Horlick's, a teaspoonful to the bottle, can be added to stimulate the digestive functions. If this fail, then use *peptogenic* milk powder, and predigest the curd; and, finally, if still unsuccessful, put the child on condensed milk.

1504 Walnut Street.

[1] A silver teaspoon, such as is in ordinary use, when filled with sugar of milk and "levelled," will contain about fifty-seven grains; a plated teaspoon contains about five grains less—practically ʒj. A silver teaspoon when "heaping" holds about 117 grains of sugar of milk—practically ʒij.

TUMOR OF THE ANTRUM AND ORBIT.[1]

By THOMAS R. POOLEY, M.D.,
of New York.

The following case is reported for the purpose of illustrating one of the ways in which tumors that begin in adjacent cavities extend into the orbit; and to provoke discussion, especially of those engaged in the practice of general surgery, as to the best method of attacking them. It is a question of propriety whether such growths belong strictly to the domain of ophthalmic surgery; but it is true, nevertheless, that they often present themselves to the specialist on account of the ocular symptoms. This communication has nothing to do with the much more varied and more frequently occurring tumors from whatever cause which primarily develop in the orbit itself, which, in their turn, may also invade neighboring cavities.

J. R. S., æt. fifty-seven years, says he has been healthy with the exception of occasional sick headaches and attacks of indigestion, until about a year before he came to consult me (September 2, 1885). About this time he observed a bony tumor over the right occipital bone, which grew slowly, without pain, and then decreased somewhat in size until, as he says, it was about the size which it now presents—an English walnut. It is very hard, except in its centre, where an ill-defined sense of fluctuation can be felt; it is firmly connected with the bone, and immovable. Soon after, another such growth began to appear on the left side of the forehead immediately over the superciliary ridge, and extending upward. It measured 1¾″ by 1″, was of bony hardness, and firmly united to the bone. This growth, while it reached quite to the upper margin of the orbit, did not go into this cavity. The development of these growths, which were quite painless, gave the patient little or no concern. It was not until the appearance of the eye symptoms, now to be detailed, that he sought advice. Six weeks before I saw him diplopia occurred, and he noticed slight drooping of the upper lid, and a displacement of the eye upward.

Upon examination, I found slight ptosis, the eyeball slightly displaced upward, while the movement downward was considerably impeded. In all other directions the movements were normal. There was diplopia in the upper and lower fields of fixation: S. R. $\frac{20}{XX}$, Em., H., $\frac{1}{36}$, S. $\frac{20}{XX}$. The ophthalmo-

[1] Read before the New York State Medical Society, February, 1886.

scope, however, did not show any abnormal condition of the fundus oculi. There was purulent inflammation of the lachrymal sac, and the left nostril was impervious to air. A Bowman's probe, however, was readily passed into the duct after slitting the upper canaliculus. The region of the cheek just below the orbit was slightly swollen, brawny to the touch, and at times painful and numb. A careful palpation of the orbit showed that its floor was invaded by a tumor which extended almost from its inner to its outer border, most prominent in its centre. This growth, which was firm, but slightly elastic, at first gave the impression of bone to the touch, but after more careful examination I concluded was not such. My impression was that we had to deal with a growth which began in the maxillary antrum, gradually filling and distending the cavity until it forced its way through the place where resistance was least—the floor of the orbit, and then invaded this cavity.

From September 2 to October 24 I kept the patient under observation and treatment, having already advised him that an operation for the removal of the growth would most likely become necessary. During this time we tried the effect of gradually increasing doses of iodide of potassium, although he gave no history of specific disease. This did no good, but the growth evidently made progress, the symptoms already mentioned increased, the eye began to protrude, and the ophthalmoscope showed decided venous hyperæmia of the optic disk. Accordingly, on the afternoon of this date, assisted by Drs. Townshend and Hawley, I proceeded to operate, with the patient fully under ether. A curvilinear incision corresponding to the lower margin of the orbit, and extending from the inner to the outer commissure, was made. The dissection was carefully continued until its margin was exposed, care being observed not to cut through the conjunctiva. It was now found that our conjecture as to the character of the tumor was correct. A livid red, fleshy-looking mass presented through a hole in the orbital plate, the rough margin of which could be felt surrounding the tumor. At first we thought the tumor was encapsulated, but soon found this not to be the case. Removing the growth from the orbit, it was found that it entirely filled and distended the antrum with a semi-solid gelatinous mass, which was very difficult to remove through the rather insufficient hole in the orbital floor, this was accomplished by the finger, forceps, and finally, syringing the cavity, until it was quite clean. In some places the floor and sides of the cavity were denuded and rough, and its inner wall perforated by the extension of the growth into the nostril. This part of the growth, too, was cleanly removed. The growth did not invade the depth of the orbit.

The operation, which was necessarily a long one, was protracted by the hemorrhage, which at times was very embarrassing, and the difficulty encountered in removing all the tumor from the cavity, and lasted over an hour. The wound was closed with sutures, except at the outer angle, where we left a sufficient opening for drainage,

Healing followed without any unfavorable symptoms; the opening in the nostril and that left at the outer angle of the wound, seemed sufficient for drainage, and in about a week was sufficiently closed to admit of the patient's leaving my private hospital. There was considerable discharge from the nose and wound for about a week longer, but at the expiration of that time the patient returned to his business, and has only made me infrequent visits. There has been a gradual improvement in his diplopia, and other symptoms. When seen last Dec. 4, 1885 the exophthalmus had entirely gone, the deviation of the eye almost, and it was only in certain strained positions of the eye that he saw double; his vision had increased to $\frac{20}{XXX}$, ophthalmoscopic appearances were normal, and all the pain and numbness of the cheek had ceased. The nostril, however, was still stopped, although he says he can breathe through it at times. There was an inconspicuous scar which was adherent to the bone, and considerable œdema of the lid below it. No tumor whatever could be felt in the orbit. He attends to his duties, which are exacting and arduous, and seems quite well and comfortable.

Portions of the growth were sent to Dr. Thomas E. Satterthwaite, who has kindly sent me the following report:

"The microscopical examination of the tumor removed from the upper maxilla, shows that it is chiefly composed of round cells with some fibrous tissue bands—the appearance corresponds to that of a sarcoma."

If the tumor involving the orbit develops primarily in this cavity, there can be no doubt as to the propriety of carrying on the operation in such a way as to explore, by incision, this region. But it seems to be also the best manner to explore those which invade it from without, as the antrum, nose, or frontal sinus. Even if we should have to resort to other methods to complete its removal from these contiguous cavities, it will probably, as in the case above mentioned, be found quite feasible to accomplish its removal through the same opening which it has made in its extension into the orbit. The writer is especially desirous of criticism from his surgical colleagues, as to whether an incision to expose more fully the cavity of antrum, or, perhaps, removal of the upper maxilla, would in this case, have been more likely to provide against the return of the growth by its more thorough eradication. It is to be confessed, that in spite of all diligent care, an element of uncertainty as to the removal of every part of the pseudoplasm remains. The microscopical examination shows the tumor to belong to a class which usually return; and in this case the gravity of the prognosis is no doubt enhanced by its simultaneous appearance with other tumors of the bone. As has been stated, one of these is already beginning to soften in its centre. As to the relation these bony tumors may have to the development of sarcoma in a bony cavity like the antrum of Highmore, I am unable, from want of experience, to state; and this, too, is a matter upon which I should beg to hear from those who have had larger opportunities for observation than I have.

MEDICAL PROGRESS.

Action of Urethan.—Dr. Kræpelin contributes a short article to the *Neurologisches Centralbl.*, March 1, on the action of urethan, or ethylic carbamate. On physiological grounds, Schmiedeberg recommended this drug as a hypnotic, and since then it has been employed therapeutically by Jolly, von Jaksch, and Sticker. The reports upon it have hitherto been uniformly favorable. Dr. Kræpelin's experience extends to about two hundred administrations in thirty-four patients. The dose employed varied between one and three grammes; on two occasions, four and five grammes were given. The author never observed any unpleasant effect, either during or after the administration of the drug. Only in one case of alcoholic gastric catarrh, vomiting was produced by one of the large doses above mentioned. Loss of appetite, however, has never been observed, even after the employment of the drug for weeks. Urethan acts as a pure hypnotic. About ten or fifteen minutes after taking it, the patient falls into a quiet sleep, that lasts several hours, and from which he wakes without any unpleasant feeling in the head. Should this sleep be interrupted, the patient, as a rule, falls asleep again when the interruption is withdrawn. This, however, depends, of course, upon the size of the dose and on the cause of the disturbance. Urethan is not a very active hypnotic; and, where there is much excitement, it is far inferior to paraldehyde, and is practically useless. In delirium tremens especially, it disappointed the expectation raised by Sticker. Perhaps, if larger doses had been given, the result woud have been more satisfactory. Urethan has no power to relieve pain; hence it cannot take the place of morphia. Nevertheless the author, like von Jaksch and Sticker, has had excellent results, from its combination with morphia in some cases of phthisis. When the drug was given in doses of one gramme, it acted efficiently in only fifty-four per cent. of the cases. When given in doses of two or three grammes, it gave a good result in about seventy per cent. Dr. Kræpelin's patients were all women, mostly suffering from mental disease. The form of alienation in which the drug gave the best results, was melancholia. Here it produced quiet sleep in seventy-seven per cent. of cases. In the excited stages of general paralysis, it often failed to produce any effect; in sixty per cent., however, the larger doses gave a satisfactory result. Many of the patients were very anæmic. The author considers the drug especially useful in cases of mild excitement or depression, accompanied by exhaustion or depressed nutrition. One great advantage possessed by urethran over paraldehyde, in addition to the longer duration of its action, is that its smell and taste are not so disagreeable, and it can be taken in simple solution without flavoring agents.—*Lond. Medical Record*, April 15, 1886.

Puncture of the Spleen in the Diagnosis of Typhoid Fever.—Philipowicz points out the extreme difficulty of finding the typhoid bacillus in cultivations made from fecal matters in typhoid fever, on account of the extremely rapid growth of other microörganisms, and communicates four cases in which he was able to establish the diagnosis by means of matter taken from the spleen during life, a mode of procedure not likely to be frequently adopted in this country. He proceeded in this manner: The spleen was first carefully mapped out, and the skin over it thoroughly cleansed by means of a 1 in 1000 solution of corrosive sublimate. Absolute alcohol was then applied, and the skin allowed to dry. The needle of a Pravaz syringe sterilized by steam was then inserted into the spleen in the axillary line between the ninth and tenth ribs, its presence in the spleen being determined by the action on it of the respiratory movements. The piston was then slowly withdrawn, and in this way a few drops, sometimes half a syringeful, of splenic pulp were obtained. The cultivations were made from the matter so extracted, and in the first case the cultivations were made by dipping a platinum wire sterilized in the flame into the spleen juice, and then plunging it into meat-peptone gelatine. Of four inoculations so made but two succeeded, and that only after an interval of seven days, which would be useless for diagnostic purposes.

Afterward he shook up the splenic pulp with the gelatine, and poured the mixture out on plates. In this way, after forty-eight hours, cultivations were obtained of the typhoid bacillus. Similar splenic punctures were made in all in about twenty cases without any bad results, so that the procedure is harmless.

A caution is given that the absence of the bacillus will not disprove typhoid fever. The examination may be made at all periods of the disease except in the retrogressive stage.—*Manchester Medical Chronicle*, May, 1886.

Solution for Use in Ozæna.—The following formula is recommended by Thomson

Sodium carbonate,	
Sodium borate . . .	āā gr. lv.
Labarraque's solution . . .	♏xxx.
Glycerine	℥iij.
Water	f℥viij.—M.

The solution to be used with an atomizer as a local application in ozæna.—*L'Union Médicale*, April 17, 1886.

Laparotomy in Peritonitis.—At a recent discussion on abdominal section in the Medico-Chirurgical Society of Edinburgh, Mr. Lawson Tait said that the presence of peritonitis, together with some other condition which would by itself involve abdomidal section, is the most potent of all reasons for the immediate performance of abdominal section. But if we take cases where there is no other condition present except the peritonitis, which would demand interference, the peritonitis alone is an imperative reason for interference. In cases of the chronic disease associated with suppuration, or with the formation of those gaseous masses which have given rise to the name of tubercular peritonitis, the treatment of opening the abdomen, completely clearing out all effusion which can be reached, and subsequently draining the cavity, has met with a perfectly uniform success in my hands in its immediate results, and with a secondary success, that is to say, complete cure of the disease and the establishment of perfect health in at least eighty per cent. of the cases.—*Edinburgh Medical Journal*, May, 1886.

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SATURDAY, JUNE 5, 1886.

THE PRESENT STATUS OF ABDOMINAL SURGERY.

THE publication was concluded in THE MEDICAL NEWS last week of DR. SENN'S admirable and scholarly paper on the present status of abdominal surgery, as it falls within the province of the general surgeon. We desire now to call special attention to this article, which presents, with great completeness, the indications for operative interference in various disorders within the abdominal cavity. It will be seen, from a careful perusal of it, that in a number of respects the lines of such interference are not yet very clearly defined; that the circumstances under which it is proper to open the abdomen are not yet incontrovertibly established; and that many operations of this sort are still, to a certain extent, experimental. This must be borne in mind in judging what has already been accomplished, and equally in deciding what still shall be attempted. It would appear that a bolder treatment of intra-abdominal trouble than has heretofore prevailed is justified by recent experience in this direction, and that surgeons may, nowadays, do much in a number of conditions which were once regarded as hopeless. At the same time, we think it proper to emphasize a point which Dr. Senn does not overlook, namely, that courage and temerity are not the same thing. It is well in the flush of triumph not to neglect the counsel of those whose natural disposition, or experience, or both, prompt them to raise a warning voice against carrying a good thing too far. It happens that, just as the sanguine paper of Dr. Dennis, which we published in THE MEDICAL NEWS for March 6, 1886, and the present one by Dr. Senn were coming out, the last volume of the *International Encyclopædia of Surgery* has appeared, containing a careful paper on "Intestinal Obstruction," by DR. ASHHURST. In this paper the author states his conviction that operative interference in such cases is too frequent rather than too rare. He lays great stress upon one condition of obstruction which is not mentioned by Dr. Senn, namely, enteritis. In a certain proportion of cases, in which the symptoms of obstruction arise, they are due to this disorder. And it is well that attention should be called to this fact in connection with the eulogies of operative interference for intestinal obstruction, in order to prevent mistakes which might be made by those who may have more zeal than discretion.

Another interesting contribution to this subject is contained in a recent paper by DR. H. BRAUN, of Jena, in the *Archiv für klinische Chirurgie*, Bd. xxxiii. Heft 2, 1886, which contains references to a number of tables of statistics, and a detailed account of 61 cases in which an operation was done for intestinal occlusion. Of these operations, 51 were laparotomies, in 30 children and 21 adults. The result was recovery in 11 cases, and death in 40. In 24 of the cases it was found impossible to reduce the intussusception. These 24 patients all died, except one in whom the irreducible intussusception was resected; in 11 other cases of resection the patients died; and death followed an attempt to overcome the difficulty by enterotomy, 9 times. Out of 27 cases in which the intussusception was reduced, 11 recovered, and 16 died; and of these, a further analysis shows that only 4 children recovered out of 18; while 7 adults recovered out of 9. In 10 cases in which enterotomy was done without a previous attempt to reduce intussusception, all the patients—3 children and 7 adults—died. These are the chief points of Braun's statistics. The conclusions he draws from his own study of them are: That operations for intestinal obstruction should be undertaken as early as possible, and that physicians should not hold the cases back so long as to diminish the chances of success on the part of the surgeon. When it is impossible to reduce the intussusception, careful search should be made for any portion of the bowel in which there is gangrene, or a tumor, and this should be at once removed and resection performed. Resection should also be performed when it is impossible to reduce the invagination, except in cases in which the condition of the patient is such that he could not survive the prolongation of the operation, or in which there is such great meteorism that it is impossible to return the bowel. In such cases, the formation of an artificial anus is the proper course.

Similar conclusions have been reached by PROF. OBALINSKI, of Cracow, who concludes an interesting paper on this subject in the *Wiener medicinische Presse* for March 21, 1886. Of twenty cases in which he operated, he thinks the absolute necessity of the operation could be doubted in only one, and this one

had a brilliant termination. In the absence of urgent symptoms, he is accustomed to wait and watch from twelve to twenty-four hours; but when the patient's strength is rapidly failing, or collapse suddenly sets in, he thinks it is best to do the operation within the first ten or twelve hours.

In concluding, it may be proper to say in regard to the attitude of conservatism, which is, perhaps, too much overlooked, or underrated, at the present time, that it rests chiefly upon the possibility of error in diagnosticating the cause of the symptoms of intestinal obstruction, and upon the fact that statistics show a slightly larger percentage of deaths after operation than after expectant treatment. As to the former objection, it ought to fall before the improvement in diagnostic skill which a study of the subject might be expected to bring about. As to the second objection, it may depend upon the fact that heretofore the operation has been left till too late, and that it has consequently not had a fair chance of success.

It may be hoped, further, that with more frequent performance of this operation, its sources of danger will be better understood, as well as the elements which may contribute to its success. Such a point as we recently called attention to concerning the fate of intestine deprived of its mesentery, may perhaps disclose the reason for some failures; and other points, of equal significance, will doubtless present themselves for consideration from time to time. One such is made, we think by Obalinski, who advocates the employment of boric acid, in warm three per cent. solution, instead of carbolic acid, for the toilet of the peritoneum, and a separate set of catgut sutures for the peritoneum, the overlying tissues being secured with metallic sutures for the muscular tissue, and a glover's suture of silk for the skin. Finally, while we would impress upon our readers the importance of prudence in undertaking operations upon the abdomen, we incline to the opinion that, as hope points in the direction of action, it ought not to be regarded as an insurmountable objection that thus far operative interference has not justified all that its advocates have anticipated for it. It should, moreover, be remembered that nature's processes do not admit of improvement, while those of art do.

THE LATEST STATISTICS OF OVARIOTOMY.

Little more than three-quarters of a century has elapsed since McDowell, in a small Kentucky village, first performed ovariotomy, and now Lawson Tait, in one of the great cities of England, has brought the operation to a perfection which probably can never be exceeded. It is remarkable that he who began, and he who has obtained the highest success in one of the greatest and most beneficent of operations should belong to the same century, and to the same English-speaking race. The glory of this success belongs chiefly to these two men, but the good which results is for all.

What struggles the earlier ovariotomists engaged in to demonstrate that the operation was right and beneficial! How they were reproached, criticised, condemned, even by leading members of the profession! But they bravely struggled against all these adversities, assured that the day of triumph would come. It has come, and ovariotomy for the removal of diseased ovaries is everywhere accepted as wise, judicious, necessary. But not even the most sanguine of the early friends of the operation could ever have dreamed of the wonderful success attained by Keith, Kœberlé, Dunlap, Homans, Battey, and other celebrated operators of the present day. Still less could they have anticipated the wonderful results which Lawson Tait has obtained, and which have recently been published.

The *British Medical Journal* of May 15th, contains a paper read by Mr. Tait before the Birmingham and Midland Counties Branch, entitled, "One Hundred and Thirty-nine Consecutive Ovariotomies performed between January 1, 1884, and December 31, 1885, without a Death." Such a report by its very title at once astonishes and delights. There is no need now of labored statistics to show how many years of life ovariotomy with a mortality of twenty per cent., secured to the mass of those suffering with ovarian tumors. The only thing is to study Mr. Tait's methods upon which his amazing success in good degree must depend, and seek to make them a part of the operation, so that others may hope to approximate that success; to equal it will be difficult, to surpass it impossible.

Of Mr. Tait's patients, the two youngest were eighteen, and the oldest was fifty-nine years. While most of the cases were of cystoma, there were one sarcoma, four abscesses of the ovary, one dermoid cyst, and twenty-six cases of parovarian cyst. None of these cases had been tapped. The average length of the abdominal incision was but two inches. Instead of sponging out the abdominal cavity after the operation, blood-warm water was allowed to flow into the abdomen, washing all the organs, and continued until the water came out clear. He remarks as to the dressing of the wound, "I still adhere to the dry absorbent cotton-wool," quite free from any kind of germicide. My fear of germs has steadily diminished; so that, if I could get them in sufficiently large quantities, and found them dry, elastic, and absorbent, I would willingly stuff my pads with them instead of wool." When peritonitis occurred after an operation, a rapidly acting purgative was given, and the peritonitis disappeared. In ten of his cases the tumors had undergone axial rotation, and were

gangrenous; under such circumstances the probabilities of a septic peritonitis, in some cases proving mortal, would seem to have been great.

It might be suggested, that while one hundred and thirty-nine ovariotomies were done, there were cases simultaneously occurring, in which Mr. Tait, after an abdominal incision, found it necessary to abandon the operation. But no, every operation was completed.

Doubtless Mr. Tait's success is to be partly attributed to the fact that many of the tumors were small. The day is not long past when ovariotomy was the last resort; the patient was dying from the tumor, tapping had been once or oftener done, numerous adhesions to the abdominal wall, to the intestines or other abdominal organs were present, and the desperate condition was the justification of that which then seemed a desperate remedy. Now, however, especially as taught by Mr. Tait through word and act, removal of the cystic ovary is the procedure first indicated. Further, one who has operated as many times as Mr. Tait has, must have acquired remarkable skill, ready recognition of peculiar difficulties, as well as of the means by which they can be met, and hence, in part, his great success. Further, nothing succeeds like success; one who has had such almost invariably good results, as he has had, thereby can impart to his patients faith and hope which are no mean factors in promoting recovery.

A SUGGESTION WITH REGARD TO INTRAMURAL CEMETERIES.

WHAT to do with disused burial grounds within our cities is a question that merits far more consideration from a sanitary standpoint than is usually bestowed upon it. The extension of our cities by growth of population has overtaken what were formerly suburban cemeteries and enclosed them as the centres of populated areas. The practice of interment, however, still continues, until at length the value of the land for building purposes and the greed of the speculator in real estate become instrumental in transforming these resting-places of the dead into the abodes of the living. Such a disposition of disused burial places is not uncommon, though in violation of sanitary law. These grounds, teeming with human remains in various states of decay, are surely not fit for building lots. The disturbance of the soil may have serious results. Moreover, it is not seemly or proper to expose rudely the remains of the dead and cram them at random into boxes to be deposited in other grounds.

The English Act of 1851, which was passed upon overwhelming testimony of the unhealthfulness of metropolitan graveyards, prohibited intramural interments and also prohibited the disturbance of the ground which had been so used, beyond one foot in depth, for twenty years. This was a great step in advance. And now we have the suggestion that the disused city burial-grounds be converted into gardens for sanitary reasons. Here is a cue for our legislators to make use of. The passage of a law prohibiting intramural interments and the disturbance of the grounds for a series of years, and their final conversion into public parks, will confer a lasting benefit upon the people.

The inhabitants of the crowded city need these open spaces Their ruthless appropriation as building sites should be stopped at once. Many of these areas have been lost and cannot be reclaimed, but those that remain should be rescued from the builders' grasp and devoted to the uses of the public.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Thirty-seventh Annual Meeting, held at St. Louis, May 4, 5, 6, and 7, 1886.

(Specially reported for THE MEDICAL NEWS.)

SECTION ON THE PRACTICE OF MEDICINE, MATERIA MEDICA, AND PHYSIOLOGY.

TUESDAY, MAY 4.—FIRST DAY.

DR. ALFRED C. HAVEN, of Lake Forest, Illinois, read a paper on

THE ETIOLOGY OF DISEASE.

The origin of disease, the speaker said, has engaged the attention of man from prehistoric times. Superstitious ideas of disease were early prevalent, regarded as entities or punishments visited upon man by the gods. He objected to the theory that disease is the result of sin, because plants and the whole brute creation suffer together with rational beings. In order to understand all the causes of disease, man must master all the forces in the universe that may directly or indirectly influence vital phenomena. He has not yet mastered all these forces, and our knowledge of the causes of disease is as yet incomplete. Similar unsatisfactory causes are assigned to many different diseases—*e.g.*, exposure to cold. This and other vague terms were considered by the essayist, and our ignorance of the etiology of certain diseases was stated in its worst form.

The signs of better times are seen. As Tyndall has said, "Never before during the long period of its history did a day like the present dawn upon the science and art of medicine."

Owing to deficient knowledge of the causes of disease, we have not a perfect classification. The essayist preferred the classification of Richardson, into

1. Phenomena having their origin in causes which, in one or other form, are persistently present, are parts of the natural order of the universe, are inseparable from that order, and are therefore beyond human control.

2. Diseases having their origin in causes which, though springing out of nature in some unknown way, and though difficult of control, are, nevertheless, under an improving knowledge controllable.

3. All diseases due to old age.

4. Phenomena of disease dependent on such causes as modes of life and self-imposed acts of the person or community.

It is more than probable that a larger number of maladies owe their origin to phenomena forming part of the natural order of the universe than has formerly been supposed. Richardson found that the inhalation of ozone produced symptoms of a catarrhal nature, and Daniel Draper, of New York, has shown that pneumonia is most prevalent when ozone is abundant in the atmosphere. Does the chemical agent sustain a causal relation to the disease?

Reference was made to the influence of "overtaxing of the heat-regulating functions" of the body in hot weather, as also of the variations in atmospheric pressure. The researches of Pasteur and other bacteriologists were briefly alluded to.

Without entering much more fully into the discussion of the subject, the essayist concluded with a thrust at medical education in America, which he pronounced "a disgrace to our nation."

"We are on the eve of great discoveries," he added, however, "which bid fair to rob many diseases of their fearful destructive power, and to revolutionize the science of medicine, and especially our theories regarding the etiology of disease."

DR. WETMORE, of Illinois, remarked that one of the chief causes of disease is inattention to the laws of health. He thought, also, that we know too little about physiology to learn much of etiology, and closed his remarks with the unqualified assertion that too much attention is paid to microörganisms, which, in his own vocabulary, were termed "bugs."

DR. L. BREMER inquired whether the previous speaker had ever seen one of the "bugs" to which he referred, declaring that no person who had not done practical work in the field of bacteriology was entitled—or, indeed, capable—to express an opinion on the subject.

DR. BELL, of Kansas, desired proof that the microorganisms are the cause of a single disease.

DR. BREMER, good-naturedly, complied with the request, citing some of the well-known examples of inoculation experiment after successive cultivations.

DR. WETMORE again made a protest against the theory.

DR. LYNCH, of Baltimore, remarked that although there are strong evidences in favor of the truth of the germ theory, it is still far from demonstration. The theory entirely overthrows the definition of tubercle, claiming that every body in the organism that is capable of undergoing a peculiar transformation is a tubercle. Thus phlegmon, catarrhal inflammations, and proliferation of lymphatic glands are all claimed to be tubercle because we find in them the bacillus tuberculosis. The mistake arises from the assumption that wherever the bacilli are found they bear an etiological relation to the disease. It has been shown that in the beginning the bacillus is not present in scrofulous glands, while later truth is that the bacillus occurs, as a rule, in caseous glands, because the germ feeds upon this material.

Dr. Bremer, he continued, spoke of pure culture. What is pure culture? How can he know that a culture is absolutely free from other poison than that which is apparent? We know that it requires but an exceedingly minute quantity of a poison to develop a disease. Pasteur, for example, inoculated a succession of animals with attenuated virus, the last animal receiving a three-hundred-millionth of a drop of septic matter, and the animal died. Caseous matter, the speaker claimed, is poisonous, and will set up tuberculosis without the presence of a bacillus. Who can say, he concluded, that the body of bacilli do not contain enough of the original poison of the disease to set up the same process as existed before?

DR. FREDERICK N. HUSTON, of Maine, read a paper on

THE EFFECT OF CERTAIN PHYSIOLOGICAL PRINCIPLES THAT HAVE NOT BEEN NOTICED AND WHICH AID IN THE CIRCULATION OF THE BLOOD.

The author based his theory on the statement in the *Reference Handbook of the Medical Sciences*, that "blood has greater cohesion than water." Viscosity or viscidity, he said, is a property possessed in varying degree by all liquids. Cohesion amounts to the same thing as a physical force. Cohesion was then described as a force possessed of some very remarkable properties in its relation to the circulation.

No discussion was elicited.

DR. L. BREMER, of St. Louis, then read a paper on

ESSENTIAL VERTIGO.

Impairment of equilibrium accompanied by strange sensations of varying kinds and degrees, he said, is met with as a symptom not only of cerebral but of a great many other diseases, especially those of an exhausting and debilitating character. Beside the physiological vertigo produced by rapid rotatory movements or by a sojourn in high altitudes, temporary pathological giddiness or dizziness is not uncommon with many persons enjoying in other respects good health. In fact, there is scarcely an adult who has not at one or other period of his life experienced vertigo of some kind.

Whereas, then, vertiginous sensations may be said to fall within the boundary lines of health, they may constitute a well-marked disease and rise to the dignity of a pathological entity, if they are severe or persistent enough to interfere with the comfort or the occupation of the individual so affected. The moral effect of the same degree of vertigo varies much with the individual moral and mental disposition of the patient: an attack of vertigo of a certain intensity that will appear of the gravest importance to one, will by another be ignored, thought nothing of, and easily forgotten. Thus, the psychical and consequently physical effect of such an attack will tell more on the excitable than the phlegmatic. Children seem less disposed to the trouble than adults, or perhaps are less likely to speak about it than adults, who have an idea, however vague, of its seriousness.

The English expressions, giddiness, dizziness, lightheadedness, all of which are comprised in the term vertigo, signify a number of totally different affections; they are often used promiscuously by physicians and patients, and may mean loss of balancing power, simple fulness or pressure in the head, faintish feelings, temporary confusion of thought, or bewilderment and strange and indefinable sensations in the head in general.

The kind of vertigo which is the subject of the pres-

ent paper shows a tolerably well-defined and circumscribed clinical picture. The term "essential vertigo" was chosen as suggested by Nothnagel. It is the form which by others has been described as "idiopathic" or "simple" vertigo.

This affection must, in the present state of our knowledge, be classed with the neuroses, excluding those cases that are due to disturbances of vision, hearing, or digestion, to the gouty diathesis, epilepsy, malaria, cardiac trouble, acute infections, and organic diseases of the brain, intracranial tumors, atheromatous condition of the cerebral arteries, in short, all the so-called organic—*i. e.*, coarse pathological lesions of the central nervous system.

Although there are many variations of the disease, and, since the symptoms are chiefly subjective in character, ever changing according to the individuality of the patient, the essayist gave with much minuteness an average representation of the symptoms of essential vertigo.

The patient is generally, though not always, more or less anæmic looking, debilitated, and exhausted by overwork, excesses, etc., and experiences a strange sensation in the head, a feeling of emptiness accompanied by a loss of balancing power.

Prominent symptoms are those included in the various phobias. Essential vertigo is an affection preëminently attended by hallucinations, other psychical symptoms taking prominent part.

Essential vertigo must be distinguished from vertigo due to aural, ocular, or stomachal disturbances. This distinction is rendered all the more important on account of the frequency with which complications of sight, hearing, and digestion accompany essential vertigo.

Neither physiology nor pathology has done much to enlighten us in regard to the seat of the disease; we cannot as yet speak of an equilibrial centre. In man the equilibrium is maintained by a complex nervous organism composed of a number of afferent and efferent nerves and their central and peripheral terminations. The chief motor centre is the medulla oblongata. There can be no doubt that this, in connection with the subsidiary and local vasomotor centres, are particularly unstable in individuals who are in a state of exhaustion or neurasthenia.

The cerebellum is not, according to recent investigation, the exclusive coördinating or equilibrial centre, but it is one of reinforcement of the motor impulses, as they are transmissible from the psychomotor area to the voluntary muscles. Essential vertigo is generally brought on by a vascular constriction in those arteries which supply the middle portion of the brain—the recognized seat of the centre of equilibration. But this vasoconstriction is chronic, and with it a more or less permanent irritability and instability of the equilibrial ganglionic cells is brought about. In advanced and confirmed cases the highest sensory impressions suffice to bring on the vertigo without the vascular disturbance. The remote cause of essential vertigo is a neurotic disposition. The proximate causes are exhausting diseases, excesses of all kinds, the rays of the sun, overheated and badly ventilated rooms, indigestion, mental maladies, and, in a great many sections of the country, malaria. The last-named disease constitutes a fertile soil for the development and growth of all kinds of neuroses. Even after the malaria has been cured the malaria caused by it may persist. The seasons also play an important part in the production of vertigo. Moderately cold winter months, May and June, are the most favorable for the patient. The heat of the summer months has a prejudicial influence on them.

Treatment. The therapeutic measures must be reconstructive in character. The food and clothing must be carefully regulated. Only woollen garments should be worn. There is scarcely a case of vertigo without gastric disturbance, usually in the form of a nervous dyspepsia. Yet such a case cannot be called a *stomacho læso*, although the stomach, above all, has to be treated. Cold water is a useful and potent remedy. Hot and warm bathing have proved injurious. The bromides and quinia usually prove beneficial; iron generally aggravates the difficulty, although, judging *a priori*, it is indicated.

Owing to the anæmia that is almost universally present, arsenic is frequently useful. Amyl nitrite and ergot seem to exert no influence on either anæmic or hyperæmic vertigo. Electro-therapeutic measures in the hands of the essayist had failed completely.

Prognosis. As regards the duration of life, the prognosis is good, but a cure is not always to be anticipated. An individual suffering from essential vertigo may grow old without apparent effect being exerted upon the powers of life, but the constant alarm that is experienced is almost certain to develop physical and psychical disturbances of more or less severity. Loss of memory and confusion of thought are ominous symptoms. It would be a comparatively easy task to combat vertigo successfully were it not for the fact that we have in most instances to deal with individuals addicted to alcohol and tobacco, whose surroundings are unwholesome, and whose financial circumstances are adverse. However complete the success of treatment in a case may seem, there always remains a tendency to relapse. Like the sword of Damocles, vertigo hovers over the head of the predisposed, ready to descend upon the victim when least expected.

DR. A. B. ARNOLD, of Baltimore, remarked that the admirable paper of Dr. Bremer had given the best effort at the explanation of the cause of vertigo that he had ever heard. It is an unfortunate fact that a great many patients suffering from essential vertigo are neglected by physicians. We are all liable to consider them as accidental to indigestion, cerebral anæmia, or some more serious cerebral affection, as cerebral tumor, abscess of the brain, or syphilis of the brain, etc. It is of great practical importance, therefore, that we acknowledge and recognize a form of vertigo which is not incidental to affections of the stomach, the eye, the ear, but that depends primarily upon a disturbance of what we must now call the centre of equilibrium.

Regarding the treatment, the speaker expressed accord with Dr. Bremer's statement that the treatment of essential vertigo is exceedingly unsatisfactory. With regard to the bromides, he said that in his experience they were of little benefit, although they are frequently of great benefit in vertiginous epilepsy. It is to be hoped that physiologists will succeed in pointing out the seat of the disease.

DR. O. T. SCHULTZ, of Indiana, then read a paper on

THE USE OF SO-CALLED ANTIPYRETIC DOSES OF QUINIA IN TYPHOID PNEUMONIA.

He stated that the practice of administering large doses of quinia in pneumonia, introduced by the Germans as auxiliary to the cold bath, has gained much favor in America.

Yet quinia properly administered in large doses is a useful therapeutic measure in the treatment of pneumonia, and more especially of its typhoid form. This use of the remedy deserves greater attention not simply on account of its power to reduce temperature, but because of some power *sui generis* which quinia seems to exert on the disease process of essential fevers.

The effect of quinia in large doses on the various organs, particularly on the lungs, was then reviewed at length. The frequency of respiration, he said, is somewhat diminished, but the remedy has no power to prevent hyperæmia or to hasten resolution. It retards the development of œdema.

WEDNESDAY, MAY 5.—SECOND DAY.

DR. S. S. LAWS, of the University of Missouri, opened the session with a paper on the *Labors of the Scientist, Louis Pasteur.*

DR. PHILIP ZENNER, of Cincinnati, then read a paper on

VALUE OF THE KNEE PHENOMENON IN THE DIAGNOSIS OF THE DISEASES OF THE NERVOUS SYSTEM.

This phenomenon has been known to the profession since the simultaneous publications of Erb and Westphal, in 1875. Its clinical significance is attached to the fact, pointed out by Westphal in his earliest publication, that it is present in health, and is absent in locomotor ataxia, usually disappearing at the very commencement of this disease. It may, also, be absent in anterior poliomyelitis and neuritis, when the lumbar portion of the spinal cord, or its nerves, are the seat of disease. It has been found missing in many cases of diabetes mellitus, and is sometimes temporarily abolished in chronic alcoholism, and after attacks of diphtheria.

Various examinations have been made to determine whether it is ever absent in health. Bürger missed it in 32 of 1409 healthy men; Eulenberg in 4.8 per cent. of healthy adults, and over 5 per cent. of children; Bloch in 5 of 694 school children; Pelizæus examined 2403 school children, at first missed it in 6, but finally obtained it in every one. Jendrássik examined 1000 persons, chiefly adults, not suffering with nervous diseases, and elicited the phenomenon in all but one, a case of diabetes mellitus.

The author then gave his own observations, which embraced the examination of 2106 persons, all of whom were adults, and chiefly males. Of these, 1174 were inmates of various insane asylums, the others, excepting 100 in the medical wards of the city hospital, were mostly in apparent good health. Of this number, the knee phenomenon was abolished in 28, 5 of whom had fully developed locomotor ataxia, 12 were in the earlier stages of the same disease, while 11 manifested no other symptoms of disease of the cord.

The cases of insanity were treated separately, because Westphal had shown that in such cases the absence of the phenomenon, even when there are no other symptoms, is strong presumptive evidence of disease of the posterior column of the cord, and because of its special value in diagnosing the form of insanity. Of the 23 cases of insanity with abolished knee-phenomenon, 10 were cases of general paralysis, and in 2 it was doubtful whether there was general paralysis. This is a large number, considering the fact that there were, at the time, very few cases of general paralysis in the asylum, only a small number more than those here given. This factor gains more importance in connection with another clinical manifestation, the condition of the pupils. We find in many cases, both of locomotor ataxia and general paralysis, what has been termed reflectory rigidity of the pupils—they do not respond to light.

Moeli, Thomson, and Siemering found in 4000 insane 492 with rigidity of the pupil; 85 per cent. of these had general paralysis.

Of the 10 cases of general paralysis with abolished knee phenomenon reported by the essayist, 9 had pupil symptoms; of the 2 doubtful cases, 1 had pupil symptoms, while in the 11 other patients, only 2 had pupil symptoms. The absence of the knee phenomenon and the presence of reflectory rigidity of the pupils may, therefore, be of great assistance in making a diagnosis in an obscure case.

The author then spoke of the results he obtained in non-insane subjects. He examined 932 persons, not insane, in 5 of whom the knee phenomenon was abolished. Of these, 2 had other symptoms of locomotor ataxia, 1 was an old man of 94, with greatly atrophied tissues, and only 2 appeared to be in perfect health. It is possible that in the 2 latter there is already some incipient disease of the cord. But whether this be true or not, the presence of only 2 such cases in nearly 1000 is so insignificant as scarcely to lessen the almost pathognomonic significance of this phenomenon. The fact that the phenomenon is sometimes absent in other pathological conditions, does not lessen its diagnostic significance in locomotor ataxia, for the other conditions can usually be easily distinguished. In the author's experience it is not so frequently absent in diabetes mellitus as might be inferred from the results of some observers. Rosenstein missed it in 6 of 9 cases, and Bouchard of 19 of 66. The author had recently examined 5 such cases, and found it present in all. In 1 of these it was very slight, and difficult to elicit, but in this case there were many other symptoms of locomotor ataxia. The author, also, believed that it was not often absent in alcoholism. He had examined quite a number of such cases at the hospital, and had examined 404 men at the workhouse, many of whom were, doubtless, hard drinkers, but had not found the phenomenon absent in these cases, although in 2 of them it was very slight. When absent in chronic alcoholism it had been restored by the administration of strychnine. This remedy had no such effect in locomotor ataxia—at least the author had seen several cases of ataxia in consultation, where strychnine had been given, and where the phenomenon remained absent.

The author then spoke of the method of eliciting the knee-jerk. On account of careful examination not being made, it is very often said to be absent where it can readily be elicited. He has had occasion to ob-

serve this again and again, especially in cases of physicians themselves. The ordinary method of having the patient cross one knee over the other and then strike the ligamentum patellæ, will answer in most persons; but in many it will fail. In that case, the person should sit upon a table with legs dangling, and knees entirely exposed, and then the ligament be struck on every part. In a small number there will still be failure by this method. For such cases, Jendrássik has recently pointed out another method, which enabled him to get his remarkable results given above, an absence of the phenomenon in only one of a thousand persons. The subject is seated as above, and, while the examiner strikes upon the ligament, he is requested to link the bent fingers into one another, and pull energetically. Doing this increases the muscular tonus and the response is very much increased. It was by this method that of the 2403 children examined by Pelizæus, the phenomenon was finally obtained in one in whom it could not otherwise be elicited, and this method enabled the author to obtain the results given in this report. He succeeded in eliciting the phenomenon by this method in quite a number of cases where he could not obtain it by the ordinary method. He did not keep a record of the number, but Jendrássik obtained it in fifteen of his thousand cases by this method, when he failed by the ordinary method. So great is the difference in some cases that the author was lead to believe that he might thus elicit the phenomenon in locomotor ataxia. So he again examined a number of cases of that disease, in which he had previously failed to elicit it, but found it still absent, notwithstanding the employment of Jendrássik's method.

In some of his cases the phenomenon was very slight and difficult to obtain. Whether this has a pathological significance it is difficult to say, although this reaction was found in a number of persons in apparently perfect health. In other cases in his case-book and not included in the figures given in this report, this slight response seems to have a pathological significance, as it is present with other symptoms of incipient locomotor ataxia.

Is the phenomenon always absent in locomotor ataxia? Westphal, in his earliest publication, stated that it was always absent in typical cases of this disease; it was absent wherever the disease affected the posterior columns in the lumbar region, and this occurred usually at an early period. Since then, various observers have reported cases in which it was present, and Hirt recently reported such an observation with post-mortem examination. Westphal has also quite recently reported some cases in which the phenomenon only disappeared at a late stage of the disease. Nevertheless, its absence is so rare as to affect very little the diagnostic significance of the phenomenon. The essayist had seen a large number of cases of locomotor ataxia, and had never seen it absent but once in a case where the disease had advanced to the stage of ataxia, and in this case the appearance was rather that of a diffused myelitis, than of a systematic disease of the cord. He had a number of cases at present under observation, where the phenomenon was abolished on one side and difficult to elicit, but these were all still in the earlier stages of the disease.

DR. JOSEPH JONES, of New Orleans, then presented *Some Observations on the Results of Medical Treatment* in the Charity Hospital, at New Orleans, during sixteen years 1869–1886.

They related chiefly to the methods employed in the treatment of various diseases, especially those peculiar to the Southern climate. The treatment of malaria was made the subject of minute consideration. The address closed with a tabulated statement of the number of cases of the various diseases treated, and the result of treatment.

DR. A. F. PATTEE, of Boston, then read a short contribution on

POTASSIUM CHLORIDE.

Formerly it was generally believed that corresponding salts of potassium and sodium had the same physiological and therapeutical properties, and that it was a matter of indifference which salt was used. Important and well-defined distinctions do exist, however, between the two salts. In the body the potassium chloride is found in the tissues, cells, and blood corpuscles, while the sodium chloride is found almost exclusively in the fluids, the blood-serum, lymph, and bile.

He had used potassium chloride in many cases of anæmia with success, after other remedies had failed. He had found it of benefit, also, in the first stage of hepatic cirrhosis due to alcoholic excess. Inflammatory exudations with effusion of lymph, particularly pelvic cellulitis, have quickly disappeared under its administration. Glandular enlargements, also, subside. In stomatitis it is equal in efficacy to the chlorate. He had used it, also, in ovarian neuralgia and menstrual headache accompanied by insomnia, and had found it more reliable than the bromides. Combined with corrosive sublimate, it is one of the best remedies for syphilis. The tincture of the chloride of iron is also rendered more effective by the addition of this salt.

In the treatment of cellulitis he had given the remedy in the dose of ten grains every three hours, sometimes more, sometimes less. Regarding its use in epilepsy, he had found it most serviceable in anæmic cases. He had used it in cases in which the bromide of sodium had produced alarming depression. He had never used it in goitre.

DR. JOHN A. OCTERLONY, of Louisville, then read a paper on

THE CLINICAL ASPECTS OF MALIGNANT RENAL DISEASE.

He considered, first, the rarity of the disease, then its symptomatology and etiology.

The diagnosis of renal cancer is often fraught with difficulty. Cancer of the stomach, of the liver, enlargement of the spleen, mesenteric tumors, hydronephrosis, cystic degeneration of the kidneys, uterine and ovarian tumors, abdominal aneurism, have all been confounded with renal cancer. Several tables, setting forth the differential diagnosis of the affection were given, among them the following:

Cancer of the stomach.	*Cancer of the kidney.*
Vomiting the rule.	Generally absent.
Hæmatemesis.	Very rare.
Hæmaturia absent.	Generally present.
Tumor in epigastrium.	Tumor in one or other flank.
Tumor small.	Often very large.
Tumor movable.	Generally fixed.
Tumor descends with diaphragm.	Does not descend.

Enlargement of spleen.	*Renal cancer (left kidney).*
Absence of descending colon in front of tumor.	Descending colon may be found in front, vertically dividing the tumor.
Border of tumor often thin, smooth, rigid, but not rounded.	Irregular nodulated, rounded, not thin
Extends upward under the ribs.	Does not extend upward.
Direction of tumor downward and inward.	Chiefly downward toward iliac fossa.
Very movable.	Generally almost or quite immovable.
History of malaria or leucocythemia.	Such history absent
Hydronephrosis.	*Renal cancer.*
Generally unilateral.	Generally unilateral.
Tumor soft.	Hard or irregularly soft.
Fluctuating.	Rarely or irregularly so.
Tumor liable to subside suddenly at times with copious discharge of urine.	Tumor permanent.
Tumor not likely to reach excessive development.	Tumor often attains enormous size.
Movable.	Generally fixed.
Descends with diaphragm.	Does not do so.
Slow growth.	Rapid growth.
No cachexia.	Cachexia present

DR. J. W. MCLAUGHLIN, of Austin, Texas, then presented some

RESEARCHES INTO THE ETIOLOGY OF DENGUE.

The epidemic of dengue which prevailed throughout the State of Texas, during the fall of 1885, he said, was unusual in many respects. 1. In its universality. 2. In the violence of its symptoms. 3. In its manifest contagiousness. 4. In the protracted convalescence of its subjects. 5. In its hemorrhagic tendencies. 6. In its numerous sequelæ.

In the city of Austin about 16,000 cases of dengue occurred during this time, out of a population of about 22,000 inhabitants. Other sections of the State were reported as having suffered as severely.

Many cases where direct contagion was the cause of this disease, came under the observation of the writer. There can be no doubt that by this means it was carried and spread from one neighborhood to another, and from the city to the country by infected individuals.

The violent type of the disease, the protracted convalescence of its victims, and its many sequelæ were unusually prominent in this epidemic. The first, by the suddenness of its invasion, often with an initial chill, its pyrexia, its excruciating pains, nausea, and the constancy of its exanthemata. The second, by the mental and physical prostration which follows its defervescence; this often continues for weeks or months with anorexia and languor. The sequelæ most frequently observed were dysentery, enterocolitis, nephritis, bronchial and gastric catarrh, abscesses, glandular enlargements, and eruptions of the skin.

It would seem, from the peculiar clinical history of dengue and its epidemic character, that it is a specific disease, that microörganisms are the source of its infection and that these microörganisms find in the blood a suitable environment for their growth and multiplication.

In order to determine the correctness of this theory, and, if possible, to obtain information with reference to the etiology and pathology of this malady; the following investigations were made: 1st. Blood was obtained from living subjects during the various stages of dengue and microscopically examined directly—*i. e.*, without the addition of chemical reagents. 2d. After-treatment with such agents, viz., glacial acetic acid—with and without dilution—caustic potash in strong and weak solutions, chloroform, and ether. 3d. The blood was dried upon sterilized cover glasses, and subjected to the action of the various staining agents. 4th. Dengue blood obtained from living subjects was introduced into test tubes containing sterilized culture media prepared for this purpose; these were closed with sterilized cotton plugs and kept at 100° F., for the growth and multiplication of those organisms which were contained in the blood. 5th. Blood was drawn directly from the veins of a dengue subject into a series of sterilized glass bulbs, united by a capillary glass tube. This was done in such a manner as to guard effectually against the introduction of all foreign germs. The series of bulbs were then put into an incubator, and kept at 100° F. 6th. The matters vomited and urine passed by dengue subjects were microscopically examined.

The following are the results obtained: In the blood examined directly or after treatment with the chemical agents named, stained or unstained, there were found, often in great numbers, in the cell elements as well as in the plasma, micrococci, about one-twentieth to one-thirtieth the size of the red cells, spherical in shape, and red or pinkish in color, often surrounded by gelatinous capsules. He always succeeded in growing in culture tubes upon the surface of the culture jelly, micrococci, and no other form of bacteria which, in size, color, shape, and behavior, are identical with those seen in fresh dengue blood. The blood contained in the series of glass bulbs was examined; the first bulb at the expiration of six weeks, the other after three months. He found the blood to contain a pure culture of micrococci which, in all respects, were identical with those previously seen in fresh blood, and grown upon culture jelly.

THURSDAY, MAY 6.—THIRD DAY.

DR. HERBERT F. WILLIAMS, of Brooklyn, presented a paper on

PNEUMATIC DIFFERENTIATION, WITH DEMONSTRATIONS WITH THE PNEUMATIC CABINET.

He referred to the great importance of local treatment in tuberculosis, according to the germ theory, and he claimed the possibility of carrying medicaments into the alveoli by this means.

Referring to the results of treatment with the cabinet, he stated that the hopes at first entertained for it had been fully sustained by the observations of competent men in all parts of the country. No climatic influences could account for the results obtained, for the cabinet had been used with the same results in all climates.

The use of the instrument was recommended also in the convalescent stage of pneumonia. Many patients die, it was claimed, from a mere inability to draw pure air into the lungs in sufficient quantity to sustain life, hence the cabinet, by giving this ability, is capable of sustaining life. In atelectatic conditions of the lung, resulting from compression by pleuritic or other effusions, the pneumatic cabinet is indicated for the expansion of the lung, so frequently not fully attained by the powers of inspiration alone.

The discussion of the merits of the apparatus was

participated in by Drs. E. Fletcher Ingals, of Chicago, Mulhall, of St. Louis, McCaskey, of Indiana, Houghton, of Chicago, Scott, of Ohio, Wright, of Illinois, and Whittaker, of Cincinnati. Those who had used the apparatus were, for the most part, favorable to it; those who had not were inclined to doubt its ability to accomplish all that was affirmed of it. The last speaker was probably the most sanguine in his hopes for its success. He spoke after a year's experience with it, during which time he had treated at least sixty cases of tuberculosis. It is indicated chiefly, he said, in the initial stage, when one of the greatest demands is a thorough ventilation of the lung cells. One requirement remains to be perfected in the apparatus, he said, and that is to make the respiratory movements more like those of natural respiration. While the speaker did not place the pneumatic cabinet in comparison with a resort to healthful climates, like that of Colorado, he realized that it placed within the reach of a vast majority of persons, who are not able to change their residence at will, the next best means of treatment.

DR. H. H. PATTON, of Dayton, Ohio, then read a paper on

PNEUMONIA IN THE OLD.

He expressed the opinion that, while pneumonia frequently attacks persons in vigorous health, the old and persons debilitated from any cause are its most common victims.

As Surgeon to the National Military Home, he had acquired some interesting statistics of hospital practice in that institution. There are in the institution about 5000 inmates, who are well advanced in life, and more or less disabled by wounds and diseases incident to the exposures and hardships of army life. Many of them are of dissipated habits, and scores of them were brought in who had been lying for hours on wet ground exposed to storms, and yet it was the common observation of the medical attendants that they did not take pneumonia. In his opinion pneumonia is rarely, if ever, produced by chilling of the body.

He called attention, also, to the latency of the symptoms, and the liability of the disease to be overlooked when attacking the aged. It rarely begins with a chill. Cough, pain, and expectoration are absent in the majority of cases. Generally there is a slight flush of the face, some rise of temperature, and increase of pulse and respirations, but these symptoms are not usually sufficiently pronounced to attract attention, unless the attendant is carefully looking for febrile reaction. Old men with pneumonia affecting one lobe are frequently so little ill that they do not consult a physician; but if a second lobe is invaded, they usually sink rapidly and die.

At the Home, within the last six months, sixty-three cases of pneumonia in members beyond eighty have been received into the hospital. Thirty-six of them died. A majority of the fatal cases were complicated with other serious maladies, but pneumonia was the immediate cause of death. During the same period fifty-three members, over sixty, died of all other causes. Seven cases were double pneumonia, and in fifteen cases different lobes were invaded, at intervals of from twelve hours to four days. In thirteen of these cases the disease began at the base of the lung. In every case over seventy death promptly followed secondary extension of the disease, or the invasion of another lobe.

In conclusion, he called attention to the unexpected suddenness of death in many cases, and said that the examinations made in the dead-house had revealed the fact that pneumonia had been the most common cause of sudden death in the old at the institution with which he is connected. Of seven sudden deaths that have occurred there within the last six months, one was due to hemorrhage of the lungs, one to calcareous degeneration of the aortic valves, and five to pneumonia. Two of the cases were complicated by serious heart lesions.

PRIZE ESSAYS.

The committee appointed to examine and award a prize on the best essay contributed for that purpose, reported that only one essay had been received, and that, although this contained many points of merit, they did not consider it of sufficient practical importance to justify them in awarding a prize.

Adjourned.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Eighth Annual Session, held in the Hall of the College of Physicians of Philadelphia, May 27, 28, and 29, 1886.

THURSDAY, MAY 27.—FIRST DAY.

THE PRESIDENT, DR. HARRISON ALLEN, of Philadelphia, called the meeting to order at ten o'clock, and after delivering an *Address of Welcome* read a paper entitled

TWO INSTANCES OF ADENOID DISEASE OF THE ROOF OF THE PHARYNX WHICH EXHIBITED UNUSUAL FEATURES.

The following cases were related as presenting certain points of interest:

Case I.—A. B., aged five years, much emaciated, without appetite, suffering with frequent attacks of indigestion, was sent to the speaker in the latter part of January, 1884. Examination showed the roof of the mouth to be elevated. The irritation was so extreme that the slightest attempt to depress the tongue was followed by gagging. The nostrils were filled with a mucoid discharge, and a small quantity of a similar discharge was seen in the fauces after gagging. During the day the respiration was not exceedingly difficult, but at night it was greatly impeded. Almost directly after the child fell to sleep respiration became labored. After three or four inhalations the breathing would cease, and the child would open its mouth and make strenuous efforts to inspire. It would then awaken and a forced inspiration ensue. After this it would quickly fall to sleep and the same phenomena would recur, and in this manner the entire night would be passed. To these symptoms were occasionally added fits of crying and emesis. During an attack of whooping-cough the symptoms became much intensified and were associated with irregular action of the heart.

Hypertrophy of the adenoid tissue of the pharynx with unusual reflex phenomena was diagnosticated. On January 29, with the patient under ether, the operation for the removal of this tissue was performed. An attempt was made to break it down with the finger, but this arrested respiration. Efforts were then made to

rasp the growth away with an instrument passed through the nose, but in a short time the patient showed symptoms of depression and the operation was suspended. The pharynx was next seared with the hot wire. During the succeeding five weeks applications of iodine and glycerine were made, but there was no evident improvement in the breathing at night. The patient was again etherized and the pharynx shown to be empty. Suspecting that the tonsils might be the cause of the difficulty, a portion of each one was excised. Still no improvement followed. A third attempt to detect the cause of the difficulty was made, and it was determined positively that the nostrils were patulous. A careful examination showed that during sleep the tongue fell backward, and that this was the essential condition. It was then directed that when these attacks came on, the boy should be held with the face downward. The moment this position was assumed the child passed into a profound slumber. It was then so arranged that during the entire night, the patient should be watched so that the tongue should not have an opportunity of falling back. This watching has been continued up to the present time. The boy prefers to lie on his side, but when the attack comes on turns on his face without awakening. He is now a strong and healthy boy.

Case II.—A girl, six years of age. The irritability of the pharynx was excessive. The patient had been twice operated on by other surgeons, and it was inferred that an attempt had been made to remove the morbid tissue. The patient was etherized with great care and the entire nasal pharynx found to be much smaller than normal, and its roof highly arched. The posterior slope of the roof was the seat of an adenoid growth. Some portions were removed by the galvanocautery passed through the nose. Some of the nodules at the lower border of the pharynx were removed with the scissors.

The patient was improved, and two weeks later she was again etherized, and it was ascertained that all the nodules had been removed, but that the membrane at the roof of the mouth was exceedingly thick and tended to obstruct the passage of air. This was subjected to cauterization in several places. No further efforts were made to reduce the size of the membrane by operation, and the patient was treated as a case of perverted nutrition of the osseous system. Iodine and glycerine were applied locally. Under this treatment gradual improvement in the nasal respiration took place, and at the present time the child appears to have perfectly recovered.

DR. F. H. HOOPER, of Boston, said that he had met with only one case in which any accident followed the operation for removal of adenoid tissue. This was in the case of a little girl eight years of age, of a neurotic temperament, and very precocious. Nasal respiration had been obstructed and articulation had been defective since the age of three years. Hearing was also impaired. A large quantity of adenoid tissue was demonstrated. The removal of this was followed by great improvement in breathing and articulation. The breathing did not improve at once, but the use of the Politzer bag resulted in marked improvement. This had been formerly tried without effect. From this time she began to grow nervous. A short time after the restoration of hearing, symptoms of chorea developed and gradually increased in intensity. The speech became affected, and for over a month she was unable to speak. The chorea assumed an exceedingly severe form; she was unable to sleep. Various remedies were tried without benefit. Finally, urethan was suggested. The use of this drug was followed by quiet sleep. Since this time the child has continued to improve and the chorea has now entirely disappeared.

DR. E. L. SHURLY, of Detroit, referred to the danger of the ether taking fire when this is used as the anæsthetic. He always used chloroform under such circumstances.

DR. S. W. LANGMAID, of Boston, referred to the interruption of respiration as an important point. In one case, coming under his observation, there was a period of thirty-five seconds between the respirations. In that case the difficulty was relieved by the patient getting on his hands and knees. This corresponded with the case related. There must have been either a falling back of the tongue or some inhibitory action of the respiratory centre. The removal of the growth did away with the interruption of respiration. He was not aware that much had been said in regard to this interruption.

DR. C. SEILER, of Philadelphia, referred to the effect of adenoid growths in the roof of the pharynx upon the singing voice. Dr. Bosworth, of New York, had called his attention to the fact that different lines might be drawn on the roof of the pharynx corresponding to different notes of the scale. A swelling in a particular situation will interfere with the production of a certain note. A case illustrating this was seen by the speaker a short time ago. A young lady could not reach the upper notes of the scale. He found a small adenoid growth which he removed with the finger. The patient is now able to reach every note with the greatest ease.

DR. HARRISON ALLEN said, in closing the discussion, Dr. Hooper's case is an evidence of the way in which the adenoid growths may affect the entire system. His case is noteworthy, in view of the fact that the phenomena appeared after the removal of the growth. With regard to the use of ether, he had not been unaware of the danger, but by fanning the patient for a moment before using the cautery the vapor of the ether is removed, and he had experienced no difficulty. His early teachings had caused him to be afraid of chloroform on account of its depressing effect upon the heart. He had been unable to find on record a case similar to the first one narrated. Dr. Langmaid's case agrees with it in that the difficulty was relieved by change of position. In a case similar to the one related by Dr. Seiler, he had removed a small mass of adenoid tissue, and although the patient was able to reach the higher notes, she complained of the sensation of a large cavity in the situation from which the mass was removed.

PROF. RAMON DE LA SOTA Y LASTRA, M.D., of Seville, Spain, presented, through Dr. J. Solis Cohen, a paper on

LUPUS OF THE THROAT.

The author referred to the difficulty of diagnosis which was experienced in many of these cases, and in illustration related the following: In 1884, he was consulted by a physician on account of an affection of the throat. The patient was much emaciated, reduced in strength, and with a clay-colored complexion. He was sixty years of age. The trouble of the throat had commenced one year previously. He was unable to swallow anything but milk and broths. The tongue was covered with

psoriatic scales. The pharynx was lumpy and of a wine-red color. The right tonsil was the seat of an ulceration extending from the pyriform fossa below to the middle of the uvula and involving half that structure. Its borders were red and swollen, its surface lumpy and irregular, and of a hard and elastic consistence. Some pain was produced by palpation, but no bleeding. There was no trouble while talking or coughing. Liquids were swallowed without difficulty. Breathing was accomplished with perfect freedom. The submaxillary glands were swollen. The patient had suffered from rheumatism, but no history of syphilis could be obtained. Taking into consideration the history of the case and the age of the patient, he considered it an ulcerated epithelioma. This was concurred in by the patient's physician. Nevertheless, mistrusting the testimony obtained, antisyphilitic medication with mercurials was tried. This occasioned such bad results that it was necessary to suspend it. He was then placed upon the use of iron and bitter tonics and such diet as he could take. The specific treatment was subsequently resumed, but the local lesion assumed such a bad aspect, that it became necessary to give up the treatment. From the fact that the ulceration was unattended by pain he began to have some doubts as to its epitheliomatous nature. He next prescribed sodium arsenite in ascending doses, with a gargle of resorcin and the use of iodoform on the ulcerated surface after it was washed with a solution of borax. For a month the ulceration continued to extend, and when he had lost all hope, it stopped its progress and became covered with healthy granulations. Cicatrization went on and was complete in three months. The scar is irregular, elevated and depressed, hard and soft, the posterior portion being adherent to the pharyngeal wall. The lingual psoriasis continued. Restoration to health has taken place. It is now eighteen months since the ulcer healed. With this result he concluded that the case was one of lupus.

His experience with this and other cases of lupus of the throat has led him to conclude that the disease may make its appearance at any period of life. He has seen it more frequently in adults than in children, and more frequently in men than in women. He has been unable to obtain any information in regard to inheritance. He has not found that heavy drinkers or smokers are more liable to suffer, nor has he found that great exertion of the voice or exposure to irritating substances, the application of the cautery or other agents, had any influence in its production.

He has never had an opportunity of observing the initial manifestations, but he has been able to detect the involvement of sound tissues later in the disease. Sometimes the mucous membrane assumes a purple color, and swells up and becomes granulated. Then one or two nodules may develop, and may attain the size of a pea. Sometimes they become prominent without any alteration in the appearance of the mucous membrane. They may remain superficial, or they may attack the mucous tissue, and also the submucous tissue. Their form is rounded and their surface is smooth. These nodules are distinguished by their rosy-red color from leprous tumors. Unlike carcinoma, the tumors are usually quite distinct. On pressure, they present an elastic resistance. This is greater than the hardness of inflammation, but less than that of epithelioma. The parts on which the tumor develops become rigid, and the natural movement is diminished or lost. Contrary to carcinoma, which usually produces sharp lancinating pain, and to leprosy, which is generally accompanied with anæsthesia, there is in lupus no alteration of the sensitiveness of the part. After a longer or shorter period, the tubercle softens and becomes ulcerated. The ulceration assumes two forms. In some cases the tumor becomes excavated to a considerable depth, while in others it is more superficial. These ulcers do not bleed on pressure. The cure is difficult, and attended with the formation of scars. In some cases these ulcers develop in a slow way, while in others they start with astonishing rapidity. They may develop within a few days, or they may remain quiescent for months or years, and then take on destructive action. The healing of the ulcer is followed by the formation of irregular scars, raised in some places, depressed in others, red in the former, white in the latter. Adhesions to different parts take place. Cicatrization takes place slowly, and is easily destroyed. Infiltration always remains.

All agree that the cure of lupus of the throat is more difficult than the same process in the skin. In the cases which he has seen, the same treatment which he has employed in external lupus, has been found of service in lupus of the throat. He does not despise internal treatment, but uses such remedies as are indicated by the general condition of the patient. This has an important influence upon the result of topical treatment. If the lupus is not ulcerated, he applies caustic substances. Until a few months ago, he used tincture of iodine, but has, however, found good effects from the use of lactic acid. He has used it in cases of lupus of the cheek and gums, and also of the larynx, and has met with no inconvenience from its use, except the pain, which varies in different cases. If the lupus is ulcerated, he sometimes uses the lactic acid; more frequently he employs a wash of borax, and covers the ulcer with powder of iodoform. He always prescribes a gargle of a one per cent. solution of resorcin. Patients thus treated have always recovered after a greater or less time. In some cases the cure has probably been realized in the natural course of the disease, rather than as a result of the therapeutic measures.

PROF. JOSEPH LEIDY, of Philadelphia, on the invitation of the Council, made some remarks on interesting points connected with the larynx.

The first point to which he referred was the aperture of the larynx. This aperture, communicating with the pharynx, is a large oblique opening, bounded above by the summit of the epiglottis, and laterally by the arytenoepiglottidean folds. The lower portion is formed by the notch of the arytenoid cartilages. Laterally on each side, two eminences are quite prominent in the fresh larynx, an upper pair and a lower pair. The lower pair is produced by the caruncule of the larynx, which terminate the summits of the arytenoid cartilages. The text-books state that immediately above these there is another pair of cartilages. These are the cartilages of Wrisberg. In his experience, he has rarely found these cartilages decidedly developed in the white subject. Where a prominence exists in the white subject, it is caused by a group of glands. Often in these a little cartilage may be found. In the negro, the cartilages of

Wrisberg are conspicuously developed. This fact has also been mentioned by European observers.

The next point refers to the vocal cords, as they are usually designated. These are described as two elastic ligaments extending from the entering angle of the thyroid cartilage directly backward and upward, to be attached to the vocal process of the arytenoid cartilage. Between these cords is the narrowest portion of the larynx, or the fissure of the glottis. While physiologically it is correct to speak of the vocal cords, yet, anatomically it is not correct to speak of vocal cords. These bands are usually spoken of as the inferior thyro-arytenoid ligaments. There is another ligament extending between the thyroid and cricoid cartilage in front and extending back to the base of the arytenoid cartilages. This is described as the middle crico-thyroid ligament. This is connected with the upper border of the vocal membranes; a connection which is very important. If the cricoid cartilage is broken or crushed, it must influence the action of the so-called vocal cords, for the vocal membranes are connected quite as much at the lower border to the cricoid cartilage as they are at the upper border to the thyroid cartilage.

The vocal cords are influenced altogether by the muscles attached to the arytenoid cartilages. These are supplied by the inferior laryngeal nerve. Another muscle which may influence the movements of the vocal membranes is the crico-thyroid. This is supplied by a separate nerve—the superior laryngeal. Why this muscle should be supplied by a different nerve has not been satisfactorily explained. The muscles which operate the arytenoid cartilage are the posterior crico-arytenoid, the lateral crico-arytenoid, and the arytenoid muscle. These muscles are sufficient to produce all the movements of the vocal membranes. Other muscles —that is to say, the aryteno-epiglottidean and the thyro-epiglottidean muscles—have been described, but the development of these muscles is exceedingly uncertain.

Another point is in regard to the connection of the muscles. In looking at the origin of muscles, we usually consider that they are attached to the surface over which they lie—for instance, we look upon the posterior crico-thyroid as arising from the posterior lateral surface of the arytenoid cartilage. If the muscle is cut across, we find that it arises only at the most remote portion of this surface. Between this and its insertion there is a smooth surface.

Specimens illustrating these points were presented.

A vote of thanks was tendered Prof. Leidy for his communication.

DR. J. SOLIS COHEN remarked that he had noticed that the cuneiform cartilages are best developed in those who have the best control over the voice. He regarded them as supports for the ventricular bands, supporting them in the same manner as the ribs support the tissue of an umbrella. The connection of the crico-thyroid membrane with the vocal cords is very interesting. There are two so-called paralyses of the larynx which present exactly the same picture. One is the paralysis of the thyro-arytenoid muscle, giving the "Indian-bow paralysis" of the Germans. The other is paralysis of the crico-thyroid muscle, giving exactly the same appearance. The way to distinguish these paralyses is by placing the finger on the crico-thyroid membrane. If the membrane vibrates when the patient speaks, the crico-thyroid muscle is not paralyzed. With reference to the action of the crico-thyroid muscle, he stated that in phonation the thyroid cartilage is fixed, and when the attempt to sound high notes is made, the cricoid cartilage is drawn up by this muscle. The posterior crico-thyroid muscle from its attachment, not only separates the vocal bands, but when they are made tense by other muscles, its action is to increase their tension.

DR. F. I. KNIGHT, of Boston, thought that the demonstration of the attachment of the vocal bands to the cricoid cartilage, solves the problem in regard to the impairment of the voice after laryngotomy. When operations are limited to the thyroid cartilage, the voice is usually not impaired, while if the cricoid cartilage is the seat of operation, the voice is always impaired.

DR. F. H. HOOPER, of Boston, remarked that a short time ago an Irishman, fifty years of age, in whom the cartilages of Wrisberg were enormously developed, came under his observation. His larynx looked very much like that of the dog. In the dog there is a muscle attached to these cartilages, corresponding to what we would call the dilator of the ary-epiglottic fold in man. If this muscle in the dog is stimulated, the cartilage is rotated outward. He agreed with Dr. Cohen with reference to the action of the crico-thyroid muscle.

DR. LEIDY had never been able to see that the crico-thyroid muscle was related to the other muscles in the production of sound. He was glad to hear the explanation which had been given, and which appeared to be a satisfactory one.

DR. J. N. MACKENZIE, of Baltimore, exhibited an instrument for *Fracturing the Nasal Septum*, the chief difference from other instruments of the same class being the great leverage which was obtained.

DR. C. SEILER exhibited an apparatus to be used in making *Sections of Frozen Heads*. Sections made with the machine were exhibited. It is possible to electroplate these sections, which will preserve them indefinitely. After electroplating, the specimen may be heated and the tissue removed. Then by pouring wax into the mould, a cast exhibiting all the anatomical figures of the original specimen will be obtained.

DR. C. E. SAJOUS, of Philadelphia, presented a *Galvanocautery Handle*, in which the wires were attached in the middle of the instrument, and both the wires and the electrodes were secured without the use of screws. The connections within the handle were made of copper, and heavier than usual in order to diminish the resistance.

DR. J. H. HARTMAN, of Baltimore, exhibited a form of *Écraseur* with extremities of different shapes, which could be used for various purposes.

THE PRESIDENT announced the following as a Nominating Committee: Dr. T. R. French, of Brooklyn; Dr. F. I. Knight, of Boston; and Dr. G. W. Major, of Montreal.

The morning session was then adjourned.

(*To be continued.*)

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, March 25, 1886.

The President, J. C. Wilson, M.D., in the Chair.

Dr. H. F. Formad presented the

RECORD AND CLASSIFICATION OF 143 CONSECUTIVE FATAL CASES OF INTRACRANIAL HEMORRHAGE OBSERVED IN MEDICO LEGAL PRACTICE AND IN PRIVATE AUTOPSIES, IN THE CITY OF PHILADELPHIA.

He made some remarks on the different forms of intracranial hemorrhage he had observed, and presented a number of specimens in illustration. There exist, he said, no well-defined descriptions of the various forms of intracranial hemorrhage with reference to their etiology, and no classification that could be of any service in medico-legal examinations, and he suggested the classification and observations presented below as particularly adapted to the latter purpose. These records may also be of use to the surgeon who wishes to trephine. The observations were sufficiently numerous to warrant conclusions of importance for various ends. Dr. Formad regretted that he met his cases on the autopsy table only, and hence was unable to offer clinical details. In some cases the history was far from being reliable, and in a few the history was left to conjecture from the surroundings, the circumstances of the case, and the appearance and general lesions of the body. Dr. Formad wished to give credit to his colleague in Coroner's work, Dr. R. R. Stewart, whose assistance in these observations he enjoyed, and also to his assistants Drs. A. J. Plumer and George H. Chambers. Dr. Formad's cases of intracranial hemorrhage embrace the results of the various kinds of head injuries (traumatic) and cerebral apoplexies (idiopathic hemorrhages) as well. By the term cerebral apoplexy, he meant exclusively hemorrhage in the brain, and did not refer to "congestive," "serous," "embolic," or "nervous" apoplexies and other affections which tyrannic nomenclature has thrown together under the term "apoplexy."

Idiopathic cerebral apoplexy should also be strictly separated from traumatic cerebral hemorrhage (this is not done by many writers). The latter can be further subdivided into very well defined subvarieties of hemorrhages each etiologically distinct, as will be shown below. These observations will clearly show the necessity and usefulness of a classification such as suggested. There should never be any reasonable doubt at the post-mortem table as to whether a cerebral hemorrhage was due to disease or to injury, or to both combined; nor as to whether a head injury preceded or followed an intracranial hemorrhage. He believed that the diagnosis between the conditions just stated was much more difficult during life. He had seen errors made by foremost surgeons and physicians and in the best hospitals in the city. He had seen cases of apoplexy diagnosticated as fracture and trephined, and he had seen cases of fracture of skull unrecognized and untouched, left to die in the medical wards.

Upon the post-mortem table, however, there should be no difficulty in diagnosticating such lesions in the present status of morbid anatomy as a distinct and well-defined science. After sufficient accurate observations have been made and after seeing conditions repeat themselves, case after case alike, and having in the majority of instances cause and effect directly before the eyes—one should be enabled in disputed cases to make a post-mortem diagnosis which leaves but little room for doubt.

Dr. Formad divided the cases of intracranial hemorrhage observed by himself into the following eight different classes; the accounts being given here in abstracted form.

Class I.—12 Cases.

Post-mortem appearances: One or more small hemorrhages in the fasciculi teres in fourth ventricle; also ecchymoses in the lining of the other ventricles (no massive hemorrhage anywhere); cerebral substance, as well as membranes, intensely congested; cranium much congested; drops of blood oozing from cut surface and from all over periosteum. Marks of contusion in scalp, with more or less ecchymoses, noted in all cases.

Histories: In two cases death was caused by electricity (details will be recorded elsewhere). Ten cases revealed histories of concussion of brain from injuries to head, without fracture of skull. Death was rapid or sudden from shock in all these cases. Six were males and six females; the majority were young persons.

Class II.—23 Cases.

Post-mortem appearances: Massive hemorrhages (blood-clot) of various sizes found between pia and dura mater; location, in the majority of cases, about opposite to places of application of violence. In none of these cases was this meningeal blood-clot located immediately beneath the point of application of violence. Ventricular ecchymoses also found usually. Brain anæmic in the majority of cases, wherever hemorrhage large. Scalp injury well marked in some, in others less so; while, in a few cases, it was hardly noticeable.

Histories: Concussion from injuries to head without fracture, in twenty-one cases; with fracture of skull in two cases. Death rapid (all within one hour) or sudden, either from shock or from compression of brain, the result of pressure from clot, or from both. Fourteen males; nine females; ages varied.

Class III.—45 Cases.

Post-mortem appearance: Massive hemorrhage (blood-clot), usually quite large, located between dura mater and inner surface of fractured skull, and at the site of application of violence only. Brain anæmic.

Histories in all these cases revealed injuries to skull from accidents, blows, or other violence, resulting in fracture of skull. Death, on the average, ensued slowly from compression or anæmia of brain in the lapse of from several hours to several days (in a few cases from five to eight days). Thirty-eight males and seven females; majority young and middle-aged persons.

Class IV.—12 Cases.

Post-mortem appearances: Massive hemorrhages, the same as in the preceding class, but occurring both at site of application of violence, and also at some point on the opposite side of skull, the first clot between dura mater and skull, while the latter in the arachnoid (between the dura and pia mater). At the site of injury there was found a fracture of the skull in all these cases,

so that they presented the combined features of Classes II. and III.

Histories: All these twelve cases observed, showed injury to skull, resulting in both fracture and concussion.

Death was nearly instantaneous in all these cases. Nine were males, and three were females; mostly young and middle-aged persons.

Class V.—9 Cases.

Post-mortem appearance: Punctiform and multiple hemorrhages into the tissue of the dura mater, which showed much thickening, and adhesions to inner surface of skull from chronic hemorrhagic pachymeningitis; great œdema of the pia mater. Brain congested, but no blood-clot in either ventricles or substance.

Histories in these cases revealed former attacks of sunstroke, or old injury of the head.

Death usually sudden, and usually following a fall or severe intoxication and excitement. Ages of deceased between twenty and fifty; all males.

Class VI.—34 Cases.

Massive hemorrhage of various sizes into the brain substance proper, and thence into one or both of the lateral ventricles. Hemorrhagic softening of brain substance of corpora striata, or their vicinity. No meningeal hemorrhage in any of these cases, though, in some instances, blood was observed to have leaked out from the inner ventricles through the transverse fissure and the fourth ventricle, and some usually liquid (post-mortem) blood would be seen on surface of brain, in the fissures, and within the meshes of the pia mater and arachnoid. Brain substance, in nearly all cases, quite anæmic. Atheroma of cerebral vessels in all but three cases. Multiple small aneurisms of cerebral vessels noted in several cases. Chronic pachymeningitis, in various degrees, in all but five cases. In some cases there were scalp injuries from secondary falls—*i. e.*, falls that were the result of preceding cerebral hemorrhage.

Many of the cases had come under coroner's jurisdiction on account of suspicion of violence.

Histories, wherever obtainable, revealed either alcoholism, rheumatism, or syphilis; middle or advanced age. Twenty-six males; eight females.

Death, in the majority of cases, ensued slowly. These were cases of true idiopathic cerebral apoplexy.

Class VII.—6 Cases.

Post-mortem appearance: Massive hemorrhage of various size, below pia mater, into brain substance, without breaking into lateral ventricles. In one case the blood-clot involved the substance of the pons and protruded into fourth ventricle; in two cases it occupied the substance of the right parietal lobe, which was the seat of an abscess; in three cases the hemorrhage was multiple, in small foci, with localized hemorrhagic softening of periphery of brain substance in various places. In three cases there was atheroma, and in the other three fatty erosions of the cerebral vessels. Chronic pachymeningitis in all cases. Brain substance congested.

Histories were those of former head injuries, alcoholism, and probable syphilis.

Death rapid, following intoxication or exertions. Age advanced in all cases; five men; one woman.

Foul play had been suspected in all these cases.

Class VIII.—2 Cases.

Post-mortem appearance: Massive meningeal hemorrhage below pia mater combined with hemorrhage into ventricles; no visible hemorrhage into brain substance. Atheroma, and multiple small aneurisms of vessels of pia and of choroid plexus. Ecchymosis in scalp.

Histories of accidental falls. No previous symptoms of cerebral disease had been noted. Intemperate habits, injury of head leading to rupture of the diseased vessels, evidently preceded the cerebral hemorrhage. The persons were at work (washing) at the time, when, nearly simultaneous with the concussion from the fall, death ensued. Both were women, aged fifty-seven and sixty-three years.

A number of cases of intracranial hemorrhage observed, Dr. Formad had excluded from the series above detailed. Several cases of compound comminuted fracture, in which the skull, membranes, and brain were partly pulpified into a mass, and hence the hemorrhage not being satisfactorily made out, were excluded from the above records. He also excluded chronic cases of cerebral hemorrhage, and those resulting in abscesses, or in a fatal lepto-meningitis, or cerebritis, after the patients had partly recovered from the immediate effects of the hemorrhage. He did not incorporate into these records another large class of intracranial hemorrhage, viz., that of infantile meningeal hemorrhage. Of these he had seen many in coroner's work. Meningeal hemorrhage is common in infanticides and fœticides; and even in stillborn children. He could not plausibly explain the frequency of meningeal hemorrhage observed in the stillborn, otherwise than by presuming that it was due to traumatic injuries from violence or to compression of the cranium during protracted labor, or when forceps had been injudiciously applied. He did not meet with cerebral hemorrhage in children, other than meningeal.

Returning to his classification, Dr. Formad stated that the quantity of the hemorrhage or the size of the clot in any case of intracranial hemorrhage appeared in all the cases he observed to depend upon the duration or the time that elapsed from the moment of injury to death. In cases where death ensued rapidly or instantaneously from shock, as in many cases of concussion, or even fractures of skull followed by immediate death, as in falls from a great height, the bulk of the ante-mortem hemorrhage (the blood-clot) was remarkably small; or clots were occasionally entirely absent, and only a post-mortem oozing of liquid blood could be observed. When death is protracted for several hours, then the blood-clot is usually large, weighing up to six or eight ounces, and causes death by compression of brain. In some cases of fracture of skull the hemorrhage is probably delayed for several hours, or ensues but very gradually. Some patients are said to have walked around for many hours after the injury, and subsequently, when the blood oozed out in sufficient quantity to compress the brain, they fell, became unconscious, and died in coma. In one case of this nature he had found a meningeal clot, weighing eight ounces.

He observed that in the cases in which the intracranial hemorrhage was voluminous, and death instantaneous, there was very little scalp ecchymoses; whereas scalp hemorrhage was more pronounced if the intracranial hemorrhage was small, and death delayed.

Further, he noticed that in no case where there was internal cerebral hemorrhage, was there any meningeal hemorrhage when cerebral vessels were normal; and in no case of traumatic meningeal hemorrhage did he see any coincident ventricular hemorrhage (except small ecchymoses), unless there existed some old lesion of the vessels or substance of the brain. It appears, however, that blood from the lateral ventricles may leak through the foramen of Monroe into the third ventricle, and thence by the aqueduct of Sylvius finds its way into the fourth ventricle, but Dr. F. did not see in any one of the cases he observed that a primary hemorrhage into the fourth ventricle ever extended to the lateral ventricles, probably on account of its rapidly fatal character. A hemorrhage on the outside of an uninjured pia mater cannot reach the interior of the brain or the lateral ventricles.

The source of the hemorrhage is often very difficult to determine. In fracture of the skull, the hemorrhage is often diploic; in concussion of brain the hemorrhage has for its source the vessels of the pia mater; in diseased conditions of the brain, or in atheroma of vessels, the small feeding branches of the middle cerebral and of the basilar artery bleed most frequently, and the blood breaking into lateral ventricles forms clots in either one or both of the ventricles.

The view expressed by Dr. J. A. Lidell, in his treatise on apoplexy, that "meningeal hemorrhage not unfrequently occurs spontaneously, as well as in consequence of the operation of violent causes;" and that (see page 120) "meningeal hemorrhage of spontaneous origin is not a rare affection" is unquestionably erroneous. Yet such "*views*" are quoted by book-writers, and presented to juries in murder trials *as facts*.

Ignorant or ill-informed post-mortem examiners can set murderers free, or, on the other hand, can create unnecessary court trials.

CONCLUSIONS.

1. Hemorrhages exclusively above the pia mater and above the dura mater—*i. e.*, on the outside of the brain—are always due to *traumatism* or to *sunstroke*, provided a cerebral source for hemorrhage is excluded, and the cerebral vessels and membranes were not diseased.

2. Hemorrhage in the floor of the fourth ventricle is always traumatic, provided there are no blood-clots in the lateral ventricles, or any part of the cerebral substance.

3. Hemorrhage exclusively below the pia mater, or in any part of the brain substance, or into the ventricles (except the fourth) is always idiopathic—*i. e.*, is due to disease.

4. There must be a diseased condition of the cerebral vessels or substance in order to ascribe a hemorrhage to disease. There must be traumatism (falls or violence) in order to account for a hemorrhage in a brain with normal substance and bloodvessels.

5. The blood-clot in concussion of the brain is not found at the point of application of violence, but usually somewhere about the opposite side of the brain, and always within the arachnoid—*i. e.*, between pia and dura mater.

6. The blood-clot in fractures of skull is always found at the point of application of violence, immediately below, and always between the dura mater and the fractured part of the skull itself. In rapidly fatal cases there is usually a second, an intradural clot in the arachnoid in some other part of brain, due to the effects of concussion.

7. A blood-clot formed within the cranial vault is more favorable to the patient if due to fractured skull than if due to a mere concussion.

8. Only clotted blood and infiltration of blood corpuscles into tissues indicate an ante-mortem hemorrhage; liquid blood is due to post-mortem oozing, and only stains, but does not infiltrate tissues.

9. Several bruises and cuts of the scalp may be seen in cases of idiopathic apoplexy, where a sudden cerebral hemorrhage causes a person to fall.

10. In some cases it is impossible to decide by medical examination alone as to whether a head injury and the resulting hemorrhage is due to a fall or to violence.

11. External marks of violence may be invisible to the unaided eye in some cases of injury of the head or other parts, but are easily detected and distinguished from post-mortem spots by means of the microscope.

12. The bulk of an intracranial hemorrhage stands usually in inverse proportion to that of the external scalp hemorrhage.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, May 10, 1886.

THE PRESIDENT, CHARLES MCBURNEY, M.D., IN THE CHAIR.

PRESENTATION OF NEW INSTRUMENTS.

DR. J. A. WYETH presented some steel drills for the fixation of the knee-joint after resection. They are smaller than the nails which have heretofore been used, and can be put in by the drilling process with less danger of crushing through the bones. The drill point is smaller than the shaft, so that as it goes through the bone it gets tighter and tighter, and remains perfectly firm. The parts suffer no concussion, and no chance of displacement, as when the hammer is employed. He uses three of these in the operation, two passing obliquely and laterally from the tibia to the femur, and the third one in the median line from the femur to the tibia downward.

DR. WEIR asked whether they projected beyond the skin more than the nails did?

DR. WYETH replied that they projected about half an inch—not far enough to interfere with the dressing.

DR. MCBURNEY inquired whether, when any pressure was brought to bear on them, they would cut through.

DR. WYETH replied that it had not proved so in his experience.

DR. BRIDDON thought that fixation of the bones is not attained by the wire suture or nails as ordinarily used. He had observed that the nails cut through the cancellous tissue of the bones when driven from the femur into the tibia, or from the tibia into the femur; he thought the bones are more surely maintained in position if the nails, as he had advocated, are driven

in in the exact centre of the bone at the side and at a right angle to the bone about three-quarters of an inch from the cut surfaces; one on either side of the femur, and one on either side of the tibia, these nails being then wired together at the side of the bones hold them securely in position; the plaster-of-Paris dressing being applied after the surgical dressings are completed.

DR. MCBURNEY thought that Dr. Wyeth's drills could be used in the same way as Dr. Briddon's nails. Some time ago he reported a number of cases of resection of the knee-joint, where no nails were used, but only an outside apparatus; and recently he has had another case in which he used nothing but the plaster of Paris applied over an antiseptic dressing, and secured very rapid union. That has been his experience in four cases in which he has dispensed with wire. He thought that in most cases good results can be secured by the simple plaster-of-Paris bandages over the usual dressings.

DR. BRIDDON thought that in the case which he treated without wiring he did not get any union, and he thought it wrong to attempt it.

DR. WYETH said that in one case in which he applied the simple dressing of plaster of Paris over the joint the child got restless. Owing to neglect of the nurse, there was complete displacement, and he was compelled to amputate. That is the only case which he has tried without further fixation of some kind, except one in which there was an abscess in the femur, extending up some five inches. He sawed off the bone until he could bring a sufficient extent of the healthy surfaces together, introduced a drainage tube, which came out at the upper end of the sinus, and placed the thigh in the perpendicular position, so as to drain away from the joint; in that case he used no wire, and the bone united and a good recovery resulted.

DR. L. A. STIMSON said that, in treating cases without fixation, the success depends on the management of the lower segment of the limb. He got excellent results without fixation of the bone by sutures, by placing the limb in a wire gutter and raising the foot so that the leg presses down against the femur; but if the foot is made fast, the femur falls away from the tibia. In three adult cases treated in this manner he has had excellent results; the gutter supports the limb laterally, and prevents displacement by rotation.

DR. GERSTER then presented a female patient, fifteen years of age, upon whom he had performed

EXSECTION OF THE KNEE-JOINT FOR ANKYLOSIS,

the angle being that of ninety degrees. In 1876 she contracted acute infectious osteomyelitis, on account of which sequestrotomy was performed on the 8th of August of that year by Dr. Leonard Weber. The joint was found to be involved, several sinuses leading into it. The cartilaginous surfaces of the knee-joint were found to be eroded, and ulceration had occurred in several places. After this operation treatment by extension was practised, but the patient was afterward lost sight of. In 1880 she again presented herself to Dr. Weber, with an apparent ankylosis of the joint. She was recommended to visit the Hospital for the Ruptured and Crippled, where she was supplied with a brace that was worn for some time. Resection of the knee-joint having been decided upon, she was admitted to the German Hospital in the middle of January of this year. The patient being anæsthetized, the Esmarch bandage was applied to the limb, the firmly adherent patella was chiselled off, and then, by the use of the saw, about two inches of the bony substance of the joint were removed, together with all the superfluous tissue surrounding the joint; but slight hemorrhage followed the operation; the extremities of the bone were then brought into proper position, and secured by nails; the first one passing through the dense, bony substance of the head of the tibia into the femur, two other nails passing from above downward from the femur into the tibia. The first nail used was, however, too highly tempered and was broken off, a portion of it remaining in the tibia until the present time without any inconvenience whatever. He used four nails in all, and secured excellent fixation. In view of the subject just discussed, he would say that he had used nails for fixation of the parts in these cases upon eight patients during the past year, and has found it a very satisfactory method, indeed. He had had no experience with Dr. Wyeth's instrument, which is based upon the same principle as the nails; but he gave the preference to the nails, as almost any nail in common use can be used; it is only necessary that it should have a sharp point and be well disinfected. He has tried the ordinary dry goods box nails, and has found them to answer all requirements. Another advantage is the fact that the nail is held by the bony tissue very firmly in its position, and there is no possibility of any motion as in the instrument devised by Dr. Wyeth. The fixation of the bones by means of nails has been found exceedingly convenient, more so than by wire, as all that the assistant has to do, after the nails are driven in, is to hold up the limb. The only precaution he observes is that he places his index finger between the bones and the popliteal space, so that no nail can be driven through the bones into the popliteal space without one being aware of it, and also to prevent any lateral displacement occurring during the operation.

The first dressing in this case was not removed until the thirtieth day after the operation. On the seventh day after the operation, however, a violent chill occurred, with a temperature of 105° F., which caused some alarm, although it is rather unusual to see such a complication at so late a date, as we rather expect, should such an event occur, that it will take place from the third to the fifth day. There was no reason to suspect any cause for this from the wound, but he deemed it his duty to open the plaster-of-Paris dressing which he applied at the time of the operation, and ascertain the condition of the joint. He found it perfectly normal, and was satisfied that this high temperature did not arise from that source. The dressing was then secured in position again, and a large dose of quinine being administered to the patient, the temperature was at once reduced, and no further rise occurred during her stay in the hospital. On the thirtieth day the dressing was entirely removed, and perfect and firm ankylosis was found to have been secured; the drainage tubes were then removed, the limb being supported by a light plaster splint, and the patient directed to walk about.

DR. WYETH desired to correct an error into which Dr. Gerster had fallen in relation to his drill; had he been present at the first part of the meeting he would have seen that his second set of drills differed from the first

used, inasmuch as the point of the drills is much smaller than the shaft, so that as it passes into the bone it wedges itself tightly in, and thus prevents any possibility of motion. Of course, an instrument founded on a single operation is not to be placed side by side with those which have been well tested by experience. But in the case in which Dr. Gerster states the nail broke off, it would seem that the drill would have proven of great advantage in preventing any such accident.

DR. GERSTER did not consider it a serious objection that a nail should be retained in the bone, so long as it does not impinge on some movable organ, such as a muscle, vessel, or nerve; he believed it would cause scarcely any injury or inconvenience.

DR. HALL, on behalf of DR. SANDS, reported the following case: J. D., aged six. At the age of three and a half years he suffered from submaxillary abscesses, which healed readily under treatment. Three and a half months before the operation he sustained a fall, striking upon the right elbow, which resulted in fungoid inflammation of the joint. He was admitted to the Roosevelt Hospital, and on December 15, 1884, an operation was performed; the elbow at that time was red and tender, and the least attempt at motion of the joint caused intense pain. The patient being placed under an anæsthetic, a transverse incision was made across the tendon of the triceps and a large tubercular gumma discovered which was removed, and the synovial membrane dissected out, as it was found to be tuberculous. In bending the joint, the olecranon was fractured off and this was also removed, and the wound afterward dressed antiseptically. The first dressing was removed on the 15th of January following—four weeks after the operation—and at that time the wound was found to be perfectly healed, but partial ankylosis resulted. On February 18, 1885, the adhesions were broken up, and by February 26 motion to the extent of fifteen degrees was secured. On March 18 he was dismissed, no further attempts at passive motion being made.

Dr. Sands desired to draw attention to the fact that forcible breaking up of the adhesions under ether had secured no better results than the active motion without the administration of ether, as the boy has since developed very good motion by the diligent use of active motion only; extension of the forearm being now almost normal.

The special interest in the case, however, is in the number and variety of tubercular lesions established in the patient. Before leaving the hospital he had a tenderness over one tibia, which disappeared under treatment with iodine; afterward there were swelling and tenderness on the back of one hand involving the bones of the carpus, which also proved to be a tubercular gumma; again, on the other tibia, a tubercular gumma appeared, also upon the skull and the bones of the right forearm. Another point of interest is that the child develops a gumma on every point upon which he strikes in his falls; the gumma being always preceded by an injury, showing that the tubercular bacilli or spores are constantly in the blood of the child, but establish themselves when some subcutaneous hemorrhage occurs. Dr. Hall drew some blood from the child, and inoculated a guinea-pig with it, but so far the guinea-pig has remained perfectly healthy. These tubercular gummata seem all to have been in the bone, and also in some places, as in the hand, to have involved the tendons; there has, however, been no bone come away. It has been generally believed that most of these processes arise from tubercular bronchial glands.

DR. WEIR inquired whether the child had any tubercular manifestations at the commencement?

DR. HALL replied in the negative.

DR. WEIR asked the above question as it seemed more probable that the inoculation of the system came from the operation, which is a consequence not at all infrequent. He had now in his wards, at the New York Hospital, a child with disease of the head of the tibia, who had been previously exploratively operated upon twice before coming under his care. Tuberculous gummata have since developed above and below the site of these incisions. He had cut down recently upon the principal mass, which involved the head of the tibia, and supposed that it was sarcoma, which had been the diagnosis previously arrived at. He had, however, found it to be a subperiosteal tuberculous deposit. In this case there was no previous history of an injury, but the disease first commenced with swelling of the tibia.

DR. GERSTER said that it has been reported in several publications, especially those of Roenig, that the inoculation of tubercle, or tubercular virus, occurs during and in consequence of operations a great deal oftener than was formerly understood; and he believes that therein lies the greatest and most important factor in the production of this condition of more or less general tuberculosis. Dr. Tate has shown, in his most interesting paper on disease of the hip-joint, read before this Society, that those cases treated on the expectant plan have done better, and have oftener been permanently cured, than those in which the joint had been exsected. Dr. Gerster believes that during exsection of the hip-joint a great deal of rough usage of the soft parts is unavoidable, and that this is the cause of dissemination. He has seen a number of cases in private practice and in hospital wards, in which he could not help assuming that the operation of exsection had caused dissemination of the tubercular disease; very much as in the case now presented.

DR. GERSTER presented a specimen from a case of

EXSECTION OF THE KNEE-JOINT FOR SYNOVIAL TUBERCULOSIS OF SEVEN WEEKS' STANDING.

It was removed from the knee-joint of a young woman twenty years of age, upon whom he had operated that afternoon. She was suffering from tuberculosis of the knee-joint, commencing about seven weeks ago; family history was good. About March 15th she was performing the duties of a housemaid in scrubbing floors, the latter being the only possible cause for a traumatic origin. About the middle of March she suddenly felt intense pain in the right knee-joint followed by some fever. She was seen by the family physician, who declared her case to be one of rheumatism, and gave her the usual remedies for that disease; the pain growing more and more intense, the leg became flexed upon the thigh; she was admitted to the German Hospital on the 24th of March. The diagnosis of tubercle of the joint was at once thought of at the time of her admission. No effusion in the joint could be detected, but there was considerable thickening of the capsule of the joint. The joint was rigidly flexed, motion very painful, in-

tegument of normal color, intense pain on pressure over the internal condyle of tibia; temperature 101° F. Ice-bags were applied and the limb was propped up in a comfortable position. Anodynes were also administered, and he was still inclined to treat the case as rheumatism or traumatic inflammation of the knee-joint. The pain and flexion increasing, he punctured the joint on the 4th of April, the patient being under an anæsthetic, and withdrew from the joint, after repeated punctures, a few drops of bloody serum, which were carefully examined microscopically on a number of slides; tubercle bacilli could not be found, but a large quantity of white and red blood-corpuscles were present. He then decided he had a case of incipient tubercular disease of the knee-joint. A plaster-of-Paris dressing was applied to the extended limb, a fenestrum being cut out over the knee for the application of ice-bags. The improvement was very slight and hardly adequate to the corresponding fixation; the elevation of temperature went on, emaciation became apparent and it was necessary to think of more energetic measures of relief. He proposed then to explore the joint and follow out the indications as he might find them. The patient gave her consent, the pain being very intense. Another point was that the skin temperature was three degrees higher than in the other knee. Until to-day, the swelling of the joint remained about the same as before, with a peculiar doughy feeling.

To-day Dr. Cerster placed her under ether, making his first incision through the tendon above the patella; the capsule was incised and a large number of miliary tubercles became visible, embedded in a thickened gelatinous capsule; there was then no doubt about the case whatever; the entire capsule was very much thickened; erosion of the articular surfaces of the internal condyle of the tibia with extensive loss of cartilage was observed; the external condyle was also slightly bared of cartilage, and rough; the capsule, containing a large number of miliary tubercles everywhere, was gelatinous. The crucial ligaments were not involved, the entire synovial membrane was in a state of hemorrhagic imbibition.

The capsular extension of the joint found beneath the quadriceps tendon was especially marked by gelatinous thickening, and in it was found a well-developed cheesy deposit of the size of a hazelnut. The joint was found perfectly empty, and contained neither synovia nor pus.

This was his third specimen of early tuberculosis of the knee-joint obtained by exsection; the diagnosis was based on the febrile symptoms, doughy swelling, painful pressure points, contraction, and the absence of an effusion; finally the gradual and steady increase of the violence of the symptoms in spite of fixation and local treatment. In the first two cases exsection was followed at once by disappearance of the fever and pain, and resulted in a speedy cure.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, May 20, 1886.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. EDWARD G. JANEWAY, read a

MEMOIR OF THE LATE GASPAR GRISWOLD, M.D., M.R.C.S.,

who died, when not yet thirty years of age, in March last. When an interne in Bellevue Hospital, he had already won distinction in the profession of his choice. While house-physician in the hospital, he was the first to make use of hypodermic injections of pilocarpine for the treatment of the chill in malarial fever, and on one occasion he saved the life of a patient who was in a collapsed state by the intravenous injection of ammonia.

DR. JANEWAY subsequently read a paper on

THE DIAGNOSIS OF DISEASES OF THE HEART.

He said he did not, by any means, propose to go over the whole ground of cardiac diseases as taught in the text-books, but merely to touch upon certain points involved in more or less obscurity, and some in regard to which there are differences of opinion. He first spoke of alterations in the position of the heart, and dwelt particularly upon the lowering of the heart- and the apex-beat resulting from abnormalities in the thoracic aorta; a circumstance to be borne in mind by all those who had to deal with cardiac affections. Again, the heart might be pushed upward and forward in cases of spinal curvature and of enlarged spleen; and when this is the case, it is necessary to be on one's guard lest the condition be mistaken for aneurism of the aorta.

Among the other points treated of were the following: In men the nipple is frequently referred to in the books as a guide for the position of the heart; but on account of the varying location of the nipple in different individuals, this is unreliable, and the centre of the sternum is a much more desirable point of reference.

The cardiac impulse is a matter of considerable interest, and it is not infrequently the case, that in those who have been resting for some time in a recumbent position there is no visible impulse; while sometimes none can be discovered even on palpation. Yet such a condition of affairs may be perfectly consistent with a normal heart, and indicate nothing more than a slight lack of cardiac force.

Thrill, as produced by the heart, is of no absolute and invariable significance, and is met with in various conditions. The thrill accompanying mitral stenosis, however, which is presystolic in time, is of considerable diagnostic value.

In speaking of auscultation of the heart, he remarked that one is apt to consider the heart more or less in a dangerous condition if a murmur is present, but that it is normal if no murmur can be detected. But it is always highly important to pay attention to the heart sounds. In anæmia, all admit that a murmur may appear at the base, and even at the apex. At times a soft murmur can be heard at the second interspace, with normal closure of the valves. Sometimes this is due to anæmia, but not always. If anæmia is not present, the cause is to be looked for in the reduction of the calibre of the pulmonary artery from some pressure upon the vessel. Some murmurs vary with the respiration, and the possible occurrence of a cardiac respiratory murmur is not to be lost sight of. In certain individuals short diaphragmatic contractions are produced when they are told to hold their breath. In order to determine the true character of a murmur, it is necessary that all the circumstances attending it shall be taken into consideration, and in many instances a number of examinations, extending over a

considerable period of time, are required for this purpose.

Murmurs are sometimes liable to be mistaken for each other, as, for instance, a mitral presystolic for an aortic regurgitant. In mitral stenosis there are also great divergencies as regards the character of the murmur, and it is possible for this condition to exist without any murmur at all, or with a murmur which is intermittingly present. In general, it may be said that the loudness or softness of a cardiac murmur is no index of the gravity or insignificance of the diseased condition present.

In speaking of the subject of embolism, Dr. Janeway said that a thrombosis may occupy such a position as to be out of the way of the blood-current, and thus give rise to no murmur whatever. In illustration, he related the case of a young woman, twenty-one years of age, in the syphilitic wards of Charity Hospital, Blackwell's Island, who, while engaged in combing her hair one day, became suddenly affected with hemiplegia, although she did not lose consciousness. A careful examination revealed nothing in the slightest degree abnormal about the heart.

Pulsation of the liver may cause difficulty in making a diagnosis between aneurism of the aorta and disease of the heart. The liver may rise and fall simply as the result of pressure from an enlarged heart, or it may have a true expansile pulsation itself.

Finally, he said, syphilis is a frequent cause of valvular disease of the heart, and a careful examination of the subject would show that it is responsible for many of the cases which are generally supposed to be of idiopathic origin.

DR. E. DARWIN HUDSON, JR., said that the various points touched upon by Dr. Janeway in his paper were of special value as coming from one who had had opportunities enjoyed by scarcely any one else in this or any other country, for following out cases observed during life, to the autopsy room. He had nothing to criticise in the remarks that had been made, and would simply refer to a few points which had occurred to him in connection with them.

The study of the location of the apex is a matter of very considerable importance. This can ordinarily be determined by palpation; but if this is not sufficient, auscultation can be resorted to for this purpose. The location of the apex is of no little diagnostic value. For instance, if the apex is in its normal position, it is practically impossible that there could be either hypertrophy or atrophy of the heart; and hence any alteration in the size of the organ may be excluded. If the heart were shifted out of its normal position, murmurs at the base and apex might have an entirely different significance from what they would have under ordinary circumstances.

In the study of mitral murmurs, it is highly important to consider the composite nature of the first sound of the heart, as so well described by Walshe. In a large number of cases he had found that murmurs which had all the characteristics of mitral regurgitation or mitral stenosis were not permanent. Although he was perfectly satisfied as to the occasional existence of the mitral presystolic murmur, he did not hesitate to say that he was somewhat sceptical in regard to its frequency. There are a great many murmurs which simulate the true mitral systolic murmur; and time, rest, and the use of cardiac sedatives are not infrequently required to enable one to determine with accuracy the condition present in any given case. At the present time he had under observation a boy who had a cardiac murmur which is most distinctly heard at the apex, and can also be heard behind, but is not transmitted around the walls of the chest. Hence this sign, which is often spoken of in the books, is fallacious.

DR. HEINEMANN said that it is an important distinction for those engaged in the study of diseases of the heart to remember that it is not the apex-beat alone, nor the size of the heart alone, and not the murmur that might be present alone, but all these combined, together with the examination of the pulsations in the neck, and the clinical history of the case, which must be taken into consideration in making a diagnosis. Before arriving at a definite conclusion in obscure cases, we would help ourselves by going over the entire case, with the clinical history.

As to the matter of thrill, he had studied this sign carefully for a number of years in the patients met with at Prof. Alonzo Clarke's clinic, and he had found that there may be a very loud and intense murmur, and yet no thrill. There is, therefore, no relation between the presence of thrill and the intensity of the murmur. As regards time, the presystolic thrill is not always to be relied upon. It is only one element in the diagnosis, and one that is uncertain.

If three or more murmurs are present in a case, it is impossible to say, upon a single examination, what the exact condition is at the aortic and mitral orifices. This can only be determined by repeated examinations.

DR. ALFRED L. LOOMIS remarked that Dr. Janeway had called attention to some very difficult questions. In the first place, he had spoken of displacements of the normal heart as a result of changes in the aorta. At one time he had had occasion to examine the hearts of a large number of healthy persons, and his experience thus acquired had shown him that the variations as regards the position of the apex-beat are much greater than the books would lead us to believe. Downward displacement of the heart was the one which struck him as the most common, and the most likely to occur —that is, displacement without disease. If the apex is below the normal limit, while the heart is normal in other respects, it will not have any special pathological significance.

As regards the force of the apex-beat, there could be no doubt that, as Dr. Janeway had said, a decided settling back of the organ is liable to occur as a result of the horizontal position. In many healthy individuals it is impossible to make anything out by means of palpation, with the patient in the ordinary position. In order to facilitate this, he should be asked to lean forward, but even this sometimes fails in eliciting the desired information. Long confinement in bed, he thought, interfered with the nutrition of the cardiac walls. In heart-troubles, it is not the murmur and the changes of position which are of so much consequence as the integrity of the walls of the heart and of the rhythm.

The more he studied the heart, the more convinced did he become that cardiac murmurs are not of as much significance as is apt to be supposed. But

when, with the murmur, there are evidences of changes in the walls of the heart, as well as changes in the rhythm, these give us more information than the force and character of the murmur. Thrill, he said, is generally present in presystolic mitral obstruction murmurs; but this is not the only thrill. In dilatation of the right heart there may be thrill as well as murmur.

The diagnosis between presystolic and aortic regurgitant murmurs is an old question. Many years ago he had seen an autopsy in a case in which the latter murmur was believed to be the one present during life; and it was found that there was stenosis of the mitral orifice. Since then, he said, there had never been to him any question about the presystolic murmur and the conditions which give rise to it. It is not of serious import, unless the result of endocarditis. The two murmurs are, in fact, however, so different that there need be little difficulty about the diagnosis at the present day.

In order to have hepatic expansive pulsation it is necessary, in his experience, to have very free tricuspid regurgitation.

Dr. Loomis then went on to say that the medical mind ought to be freed from the trammels of these murmurs. It is the dilatation of cavities that caused the trouble; but if there is perfect compensation, there will be no difficulty. Sometimes the dilatation of the heart-cavities is quite sudden, as in one case referred to by Dr. Janeway, in which this sudden dilatation was the direct result of unusual physical exercise. In conclusion, he said that he had not understood whether Dr. Janeway considered ulcerative endocarditis a primary or a secondary affection; and there is considerable diversity of opinion as regards this point.

Dr. Janeway replied that he had seen two cases recently in which there was cystitis, with septic organisms, and the ulcerative endocarditis present was clearly secondary. He had also seen many other similar instances, and one was a case of pyæmic pneumonia, in which the presence of the pneumococcus of Friedländer was satisfactorily demonstrated. But there are undoubtedly other cases in which the ulcerative endocarditis is a primary process. Here nothing has preceded the endocarditis, and yet numerous vegetations are found associated with abundant microörganisms. The most careful investigation failed to show that these patients had been exposed to typhus or other form of infectious disease, and they were not followed by cases of such disease in other individuals. It was, therefore, highly probable that the ulcerative endocarditis was primary. Then again, there is a third class of cases in which it is impossible to say whether the endocarditis is primary or secondary, and in illustration he mentioned the case of a boy suffering from osteomyelitis, as well as endocarditis, which was of this character.

NEWS ITEMS.

MONTREAL.

(From our Special Correspondent.)

Longue Pointe Asylum.—There will be, during the present session of the Quebec Legislature, a good deal of discussion concerning the now notorious asylum, the St. Jean de Dieu. An act passed last session for the better management of the institution has, so far, been a dead letter, the Lady Superior, Sister Theresa de Jesus, having refused to allow its provisions to be carried into effect.

The report of the Government inspecting physician, Dr. H. Howard, has just been published, and in it a remarkable state of affairs is disclosed. The Reverend Mother Superior, on being requested to accept the board of physicians appointed by the Government, flatly refused, and appointed her own medical men to take charge of the patients.

Dr. Howard advises the Government to annul the contract in its entirety, and to take the Provincial asylums under its own control. He says: "Thus all petty jealousies and suspicions would be silenced, and, above all, there would be an opportunity to raise our insane asylums to the dignity of scientific institutions." If it is not prepared to take this step, the inspecting physician then suggests that the nuns have charge of the idiots and imbeciles—these the sisters will be able to treat themselves, as no doctors will be required. The insane should be treated in a special hospital under the control of a medical board appointed by Government. He considers that this latter plan would meet the views of the public and the contractors. With regard to the contract system, Dr. Howard says: "It is barbarous to have the incurably insane treated by contract, even though the contractors be saints. I believe it a mistake that religious communities should become contractors when, although they take payment from the civil authorities, they refuse to yield to civil power unless by so doing it will be in accord with the obedience due to their Superior-General." The report also mentions the fact that vaccination, although ordered to be performed in September, was not carried out till December, and after several of the inmates had died of smallpox. Dr. Howard says that the asylum is scrupulously clean and neat, well ventilated and heated, but remarks that something more than this is necessary for treating the insane. After giving statistics of deaths, the report in conclusion states: "These statistics do not speak well for the management of the asylum, and are strong arguments in justifying the Government in passing the acts of last session."

This is the first report of the inspecting physician that the Government has made public for years. Although Dr. Howard has for years past, in his reports, drawn attention to the way the insane were treated by the Sisters and the iniquity of the contract system, the Government never dared publish them. Now, however, when the Sisters openly defy the Government, it is glad to avail itself of Dr. Howard's reports.

Vaccination and Smallpox.—The Rev. M. Descarries, curé of St. Henri de Montreal, reports that up to the 31st December, 1885, there had been 233 cases of smallpox at St. Henri, with 115 deaths, all of whom were unvaccinated. Only one person vaccinated successfully within the year took smallpox.

The Association of American Physicians will hold a preliminary meeting for organization in the Army Medical Museum building, Washington, D. C., on June 17 and 18, 1886.

The following papers are announced to be read on the occasion:

Address by the President, Francis Delafield, M.D., of New York.

Knee-jerk and Muscle-jerk in Disease, by S. Weir Mitchell, M.D., in conjunction with Morris J. Lewis, M.D., of Philadelphia.

Typhoid Fever, by F. Peyre Porcher, M.D., of Charleston, S. C.

Spasm of the Larynx in Rickets, by J. T. Whittaker, M.D., of Cincinnati, Ohio.

Discussion: Does the Present State of Knowledge justify a Clinical and Pathological Correlation of Rheumatism, Gout, Diabetes, and Chronic Bright's Disease? Referee, James Tyson, M.D., of Philadelphia. Co-referee, W. H. Draper, M.D., of New York.

Notes on some Cases of Diaphragmatic Pleurisy, by E. T. Bruen, M.D., of Philadelphia.

Certain Elements found in the Blood of Malarial Fever, by W. T. Councilman, M.D., of Baltimore.

Certain Clinical Facts connected with Tabes Dorsalis, by H. N. Lyman, M.D., of Chicago.

Diseases of the Appendix Cæci, by Reginald H. Fitz, M.D., of Boston.

Periuterine Inflammation, by Wm. M. Polk, M.D., of New York.

An Experimental Study of Glomerulo-nephritis, by W. H. Welch, M.D., of Johns Hopkins University, Baltimore.

Bicuspid Condition of the Semilunar Valves, by William Osler, M.D., of Philadelphia.

Other papers have been promised, but their titles have not yet been announced.

THE FIRST ANNUAL REPORT OF THE ADIRONDACK COTTAGE SANITARIUM has been received. The Adirondack cottages were opened for the reception of patients February 1, 1885. As the undertaking was one which in this country, at least, had no precedent, and as those who had assumed the responsibility were totally inexperienced in such work, the management of the institution has necessarily during its first year been beset with difficulties which experience alone could have anticipated. It has therefore been much of the nature of an experiment. The results obtained and the hearty support accorded on all sides, have led the management to hope that the experiment may fairly be said to have proved a success. The future of the enterprise will depend on the support given it by the public; that it is a necessity and capable of accomplishing much good, the experience of the past year has demonstrated. In that year 26 patients, 12 men and 14 women, have become inmates of the institution; of these 2 have died, 4 have shown no improvement, 8 are still under treatment, and 12 have returned to their occupations, apparently restored to health.

DEATH OF DR. W. O. BALDWIN.—Dr. William Owen Baldwin died in Montgomery, Alabama, on May 30th, in his sixty-eighth year. He was an Associate Fellow of the College of Physicians of Philadelphia, President of the Medical Association of the State of Alabama, and a member of the American Medical Association, of which body he was President in 1869. He was also the author of numerous contributions to medical literature.

NEW HAMPSHIRE MEDICAL SOCIETY.—The ninety-sixth annual meeting of this Society will be held in Concord on Tuesday, June 15, 1886.

MICHIGAN STATE MEDICAL SOCIETY.—The twenty-first annual session of this Society will be held at Jackson, beginning the second Wednesday (9th) in June, 1886.

ILLINOIS STATE MEDICAL SOCIETY.—The thirty-sixth annual meeting of this Society was held in Bloomington on the 18th and 19th of May, 1886. The following officers were elected for the year 1886–1887:

President.—W. T. Kirk, M.D., of Atlanta.

First Vice-president.—E. Wenger, M.D., of Gilman.

Second Vice-president.—W. O. Ensign, M.D., of Rutland.

Permanent Secretary.—D. W. Graham, M.D., of Chicago.

Treasurer.—Walter Hay, M.D., of Chicago.

RESIGNATION OF PROF. EDES.—Dr. R. T. Edes has presented his resignation of the Jackson Chair of Clinical Medicine in the Harvard Medical School.

NOMENCLATURE OF MENTAL DISORDERS.—In pursuance of a resolution passed at the Medical Congress on brain diseases, held last summer at Antwerp, by which it was suggested that local conferences should be held to draw up trustworthy international tables of statistics on insanity, a conference of Austro-Hungarian specialists will be held at Vienna on December 26 and 27, 1887. The invitations have been issued by Drs. Benedict, Gausen, Leidesdorf, and Meynert, of that city. It is proposed that the conference shall revise the nomenclature of mental disorders.

HEADACHE IN SCHOOL CHILDREN.—PROF. N. J. BYSTROFF has examined 7478 boys and girls in the St. Petersburg schools, during the last five years, and found headache in 868; that is, in 11.6 per cent. He states that the percentage of headache increases almost in a direct progression with the age of the children, as well as with the number of hours occupied by them for mental labor; thus, while headache occurred in only 5 per cent. of the children aged eight, it attacked from 28 to 40 per cent. of the pupils aged from fourteen to eighteen. The author argues that an essential cause of obstinate headache in school children is the excessive mental strain enforced by the present educational programme, which leaves out of consideration the peculiarities of the child's nature and the elementary principles of scientific hygiene. The overstrain brings about an increased irritability of the brain, and consecutive disturbances in the cerebral circulation. Professor Bystroff emphatically insists on the imperative necessity for permanently admitting medical men to conferences of school-boards. Of palliative measures, he mentions methodical gymnastics, mild aperients in well-nourished children, steel in the anæmic, bromides, inhalation of oxygen, and, in severe cases, a temporary discontinuance of all studies. —*British Medical Journal*, May 15, 1886.

PROFESSORIAL SALARIES.—Under this title, a recent contribution to the *Scotsman* furnishes some interesting statements as to the incomes of the various professors of

the Medical Faculty of the University of Edinburgh. The net income from salary, fees, etc., of the chair of anatomy would appear to amount to £3440; and, next in order of amount, comes that of physiology, which is worth £2170 yearly. The chairs of botany, materia medica, natural history, pathology, midwifery, and clinical surgery vary in value from £1600 to £1950 per annum. In the aggregate, the income of the chairs in the Medical Faculty amount to £26,628, and the expenses connected with them to £5180, leaving a net total revenue of £21,230. Particulars are also given of the work expected of the holders of these posts. These figures will probably bear comparison with the returns of most universities at home or abroad; nor can the remuneration be considered excessive so long as the teaching work is performed satisfactorily; indeed, it is only by liberal treatment that the best men can be secured, and induced to remain and become a credit to their university. It is the inability to meet such demands that hampers the selection of men for smaller and less well-provided-for universities.—*British Medical Journal*, May 1, 1886.

STEAM IN SEWERS.—The question as to whether exhaust steam in sewers is injurious to public health, was discussed at a recent meeting of the medical officers of the Buffalo Municipal Board of Health. Dr. Geo. Fell, who has had an extensive experience as a civil and sanitary engineer, was invited to speak to the Board on this subject. In his opinion, the discharge of steam in sewers is not injurious to the public health, provided the sewers are ventilated. If, however, the sewers are not ventilated, the practice is dangerous, since by increasing pressure in the sewers, the sewer air may be forced through traps into dwelling-houses.

CHEAP FOOD FOR THE PEOPLE.—At a meeting recently held under the presidency of Dr. B. W. Richardson, the following resolution was unanimously carried: "That in the opinion of this meeting the most practical mode of developing the best system of supplying cheap dinners and other meals for the people ought to include the establishment of public kitchens and depots, at which the dinners and meals can be partaken, and from which they can be supplied to workshops, factories, and private houses. That such a system, supported by the general and influential public, would be immediately popular, and that the chairman be requested to communicate this view of workingmen themselves to the leading organs of public opinion." A committee has been formed to carry the above into effect.

NOTES AND QUERIES.

REMOVAL OF FOREIGN BODIES.

A correspondent calls attention to the fact that the late Dr. John Hodgen, of St. Louis, devised the identical plan of removing foreign bodies by means of a silver wire loop which was published in this journal for May 1st, as by Jonathan Hutchinson. Dr. Hodgen also devised and published a cut of an instrument having two loops at right angles to each other. This is a singular instance of two persons hitting upon the same plan for a difficult although minor operation. Dr. Hodgen used it for a urethral calculus.

SUPERNUMERARY MAMMARY GLAND.

I CAN add another to the instances of supernumerary mammary gland reported by Dr. Edwards in THE MEDICAL NEWS of March 6th.

In February, I attended a lady in her first confinement who had never noticed anything unusual about her left axilla, until the third day after labor, when a swelling, occupying the middle of the armpit, occurred when the breasts became distended with milk, and lessened in size as they were emptied.

Its first appearance was attended with acute pain, which is since less troublesome. There is no nipple, and there has been no discharge of milk. It has been closely watched, and has not inflamed. I have become satisfied that it is another instance of the anomaly referred to.

F. A. CASTLE, M.D.

55 E. FIFTY-SECOND ST., NEW YORK.

CORRIGENDUM.

Page 525, second column, for "Graves" *read* Treves; page 526, first column, for the late "Dr. Gross" *read* the late Dr. J. Marion Sims.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 29, 1886.

DICKSON, S. H., *Passed Assistant Surgeon.*—Detached from the Naval Academy, and to the "Constellation."

SIMON, W. J., *Surgeon.*—Detached from the Naval Academy, and to the "Constellation."

KIDDER, B. H., *Surgeon.*—Detached from the "Powhatan," and to the "Tennessee."

RHODES, A. C., *Surgeon.*—Detached from the "Tennessee," proceed home, and wait orders.

CORDEIRO, F. J. B., *Assistant Surgeon.*—Detached from the "Powhatan," proceed home, and wait orders.

CLARK, J. H., *Surgeon.*—Ordered for examination preliminary to promotion.

HUGG, JOSEPH, *Surgeon.*—Detached from the "Minnesota," and granted sick leave.

H. N. BEAUMONT, *Surgeon.*—Ordered to the Receiving Ship "Minnesota."

LAW, H. L., *Surgeon.*—Detached from the "Wabash," and granted sick leave.

HENRY, CHAS. P., *Assistant Surgeon.*—Ordered to the Receiving Ship "New Hampshire."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM MAY 25 TO MAY 31, 1886.

HARTSUFF, ALBERT, *Major and Surgeon.*—Detailed as member of a Board appointed to meet at U. S. Military Academy, West Point, N. Y., on June 1 and August 25, 1886, to examine into the physical qualifications of members of the Graduating Class, and the candidates for admission to the Academy.—*S. O. 121, A. G. O.*, May 25, 1886.

Par. 7, *S. O. 120, A. G. O.*, May 24, 1886, revokes so much of par. 12, *S. O. 119, A. G. O.*, May 21, as details *Surgeon* ALFRED A. WOODHULL as member of Medical Examining Board, to meet at West Point, N. Y., on June 1, 1886.

APPEL, A. H., *Captain and Assistant Surgeon.*—Ordered for duty at Fort Reno, Indian Territory.—*S. O. 52, Department of Missouri*, May 24, 1886.

BENHAM, R. B., *Assistant Surgeon.*—Ordered for temporary duty at Fort Omaha, Nebraska.—*S. O. 56, Department of the Platte*, May 24, 1886.

JOHNSON, R. W., *First Lieutenant and Assistant Surgeon.*—Ordered for duty at Fort Adams, Rhode Island.—*S. O. 45, Division of the Atlantic*, May 25, 1886.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

SOME RECENT ANNOUNCEMENTS OF PASTEUR CONCERNING HYDROPHOBIA.

BY CHARLES W. DULLES, M.D.,

SURGEON TO OUT-PATIENTS IN THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA, AND THE PRESBYTERIAN HOSPITAL, IN PHILA.

FOR the same length of time which Pasteur has spent in laboratory experiments with rabies, I have been engaged in a special study of the same subject; at the bedside, and in what has been put on record about it by practical physicians and experimenters from the time of Aristotle to the present day. At the beginning, I had no prejudice and no pet theory in regard to hydrophobia; but as my studies advanced, certain ideas, quite different from those with which I began, impressed themselves more and more deeply upon my mind, until they developed into strong convictions. It ought not to seem strange that this should be the case; nor, I think, ought these convictions—which are the result of a long and, I trust, conscientious search for the truth—to be regarded by those who do not share them, and who can hardly have studied this subject as extensively as I have, as if they were mere prejudices. To err is human; and merely to have read and observed and thought much about anything, gives no guarantee of infallibility. But this method is generally more reliable than the most brilliant intuitions; and no matter how eminent may be any individual experimenter or theorist, his own work must be investigated and compared with that of others, before a just estimate of it can be formed by those to whom his conclusions are offered for acceptance. Pasteur is only one of hundreds of men who have studied the subject of hydrophobia experimentally, and his announcements have no more claim to acceptance without investigation than have those of any of the many who have preceded or who have followed him. When prizes are to be awarded, it is often made one of the conditions of competing that each work shall be known only by some indifferent mark or legend, so that no dazzling reputation shall blind the judges to its demerits or add a borrowed brightness to what is in itself excellent. This admirable principle should not be forgotten in judging Pasteur's work. If it be trustworthy, it needs none of his great fame to establish it; if it be untrustworthy, this fame may come to serve an inglorious purpose. With these ideas fixed in my mind, I have carefully studied all of Pasteur's communications about hydrophobia as they appeared, and have subjected his theories and the evidence which he has adduced in support of them, to the critical tests which I think should be applied to every new announcement in the realm of science. If Pasteur or his friends think that to dissent from his opinions is to cast discredit upon him, I do not see how they can be driven from this position. But the fair critic would be glad to distinguish between a man's purpose and his work, and to honor a good intention, even when his sober judgment will not permit him to endorse the steps taken to carry out such an intention.

It cannot be denied that the determination to discover a means of preventing the outbreak of so dreaded a malady as hydrophobia is a noble determination; but it does not follow from a recognition of this fact that we must blindly approve all the methods or conclusions of one who is animated by so admirable a motive. We may, therefore, grant all that is claimed for the humanitarian purpose of Pasteur, if we keep constantly and clearly before our minds the fact that it has no bearing whatsoever upon the correctness of his opinions. These must stand or fall solely upon their own merits.

I have already, in a paper read before the Philadelphia County Medical Society, January 13, 1886 ("Comments on Pasteur's Method of Treating Hydrophobia," *New York Medical Record*, February 13, 1886), passed in review the claims of Pasteur in regard to his preventive inoculations against hydrophobia, and the evidence in support of them. I cannot now repeat what I then said, but would refer those who care to study in detail the grounds for my estimate of Pasteur's claims at that time, to that paper. The estimate, however, I desire here to repeat and to emphasize. It was: that Pasteur's so-called method of treating hydrophobia before the outbreak appears to be founded upon untrustworthy experiments and unsound reasoning, and ought to be rejected and condemned, in the interests of humanity as well as of science.

Since the time when I expressed this judgment, events have occurred which have confirmed it in my mind.

Pasteur has made three new communications to scientific bodies. The first of these is entitled, "Resultats de l'application de la méthode pour prévenir la rage après morsure" (*Bull. de l'Acad. de Méd.*, March 2, 1886, pp. 294–303). (This was also communicated to the Académie des Sciences, and is published in the *Comptes Rendus*, of that body.) In this paper, Pasteur claims to have treated successfully—with one exception—up to February 25, 1886, 350 persons bitten by rabid dogs; and ends with the exclamation, "The prophylaxis of hydrophobia is established" (*La prophylaxie de la rage est fondée*). In April, 1886, he made his second communication, entitled "Note complementaire sur les resultats de l'application de la méthode de prophylaxie de la rage après morsure" (*Comptes Rendus de l'Acad. des Sciences*, April 12, 1886, pp. 835–838). In this paper he says that he has treated 726 cases. Pasteur's third communication was made to the French Academy of Medicine, on May 4, 1886, and

is entitled "Sur les resultats de l'application de la méthode de prophylaxie de la rage" (*Bull. de l'Acad. de Méd.*, May 4, 1886, pp. 664, 665). In this communication he says he has treated 950 cases, with only seven deaths.

At first sight, these statements seem to justify fully the enthusiastic applause with which Pasteur's announcements have been received by many of his countrymen, and the hopes which they have excited throughout the whole civilized world. But, proud as the French may be, and hopeful as all the world may be, reason will have its turn, and the critic must discard both pride and the most sanguine expectations when he studies the foundation for either.

Let us then consider Pasteur's announcements dispassionately and critically. Theoretically, I think them diametrically opposed to reason and analogy. I have already (in the paper before alluded to) attempted to show that Pasteur's method for the prevention of the outbreak of hydrophobia after inoculation from a rabid animal is utterly inconsistent with what he has claimed in regard to the prevention of other inoculable diseases, inconsistent with the work of other experimenters, and inconsistent with the natural history of hydrophobia. I cannot refrain from calling your attention once more to the fact that Pasteur has never given the slightest evidence of being familiar with any work done outside of his own laboratory, or with the history of his subject. He may be granted to know what are the symptoms of the disorder which he can provoke or prevent by the inoculation of his chosen material, and his ability to provoke or prevent this disorder need not now be discussed. But, I assure you, I have not found any reason for believing that this disorder is rabies, or that Pasteur knows what the rabies which has been discussed from the time of Aristotle, 350 years before the Christian Era, to the present day really is. I do not find in Pasteur's statements anything clearer or more rational than is embodied in the crudest popular ideas in regard to hydrophobia, and his artificial disease does not appear to me to have any definite relation to it.

But, to come to his so-called facts. Pasteur claims to have treated the enormous number of 950 cases, between July 7, 1885, and April 12, 1886—a period of only nine months. In regard to them, he claims to have proof that all his patients had been bitten by rabid animals. If this were true, we might, perhaps, feel justified in shutting our eyes to the theoretical objections to Pasteur's method, and rejoice in the triumph achieved over the dangers which flow from such bites. But, unfortunately, we cannot believe that it is true. In the first place, never in the history of the world has anything like such a number of cases of exposure to hydrophobia been observed. I cannot repeat the mass of statistics which I have studied. The best statistics show that before the invention of Pasteur's method there were annually from 12 to 15 victims of hydrophobia in France. At the rate of the "cures" which Pasteur claims, there would be annually about 4000! The statistics of all countries show about 1 to 1½ per million inhabitants. In Austria, from 1879 to 1885, there were from 13 at most to 2 at least in a year; while in Prussia the deaths fell progressively from 10 to 6, 4, 1, and 0! (See Lutaud: Questions à M. Pasteur. *Journ. de méd. de Paris*, May 2, 1886, pp. 683–692.) If anyone wishes to assert the contrary, let him bear the burden of the proof. Pasteur himself has not undertaken it, but has attempted to explain the unparalleled number of cases he has treated by saying that the cases were suppressed by denials of danger and wilful deception of persons bitten by mad dogs in former times. To this it may be replied that, if such a course has kept the general mortality down to about one or one and a half per million per annum —as something has done—it may be as humane a method as Pasteur's preventive inoculations. But we all know that such a course would never have had such results if the dangers were of the nature and gravity which Pasteur assumes for them. It seems, indeed, as if the attention attracted to this disorder by the announcements of Pasteur had led hundreds of persons bitten by dogs entirely innocent of rabies to hurry to his laboratory to be cured of a disorder which they would never have thought of but for his own influence upon their minds. This conviction is strengthened when we study the cases with which we are familiar. Shall we, in America, forget the Newark children, who figure in Pasteur's list of cures? Six were bitten by the same dog. Four went to Pasteur, and came back "cured;" two staid at home and did nothing, and are just as well as the four. And the dog that bit them was not mad, either, as I felt sure and said at the time—for I have made a study of rabies in dogs, also. No human being or lower animal bitten by this dog—which was incontinently killed—has given evidence of rabies. Dr. Anna Kingsford, of England, has taken the trouble to investigate seven other cases of Pasteur's best known and most widely cited "cures," and has found them all void of solid foundation (see *N. Y. Evening Post*, March 30, 1886), and very pertinently concludes that when the cases which are made so much of turn out to be so worthless as proofs of the efficacy of Pasteur's method, it is hardly worth while to inquire into the accuracy of less important "cures," concerning which the necessary data are not accessible. Certainly Americans cannot supply what is needed to support Pasteur's claims.

Again, I must direct your attention to the cases of death of bitten persons while under Pasteur's treatment. His first fatal case was a little girl brought to him thirty-six days after being bitten, who died the same day, I believe, on which Pasteur declared, "I am confident my treatment will be successful, if commenced any time before active hydrophobia sets in, even if a year or more elapses between the bite and the commencement of the treatment." He was mistaken then—perhaps he is mistaken in what still remains of his confidence.

But, then, he has since had six deaths under his treatment. These he explains by the fact that the patients had been bitten by wolves, and the *assumption* that the bite of a so-called rabid wolf is more dangerous than that of a so-called rabid dog. Here is a plain begging of the question. He assumes just what he ought to prove. And his assumption is absolutely unfounded in fact. There is no reliable

evidence in support of it. He himself has not found any. Pasteur attempts to support his assumption by citing five apocryphal instances, in the years 1706, 1806, 1812, 1849, and 1866, in which the mortality after the bite of supposed wolves was nearly one hundred per cent. But these instances are too untrustworthy to merit serious attention; and, as Lutaud has pointed out in an admirable article ("Questions à M. Pasteur," *Journal de méd. de Paris*, May 2, 1886, p. 689), Pasteur "ought to give us recent cases, or at least cases of a less legendary date, so that they might be carefully investigated."

In fact, there has never been any person before Pasteur who thought rabies in wolves differed from the same disease in other carnivora, and it furnishes no support to this notion, that it should have originated with Pasteur, and least of all, that it should have originated under the pressure of circumstances so unfavorable to his method for combating hydrophobia.

If we sum up what has taken place during the first nine months of the application of Pasteur's method of preventing hydrophobia, we find that there has been an enormous increase in the number of persons who believe they have been bitten by mad animals, and a decided increase in the number of deaths from hydrophobia. In France, England, and America where Pasteur's announcements have been most warmly received, this increase of fear of death has been most marked. In Germany, where there is a national prejudice against all French ideas, the new teachings in regard to hydrophobia have not taken root, and there has been a blessed freedom from the panic and folly which have been exhibited in the three countries I have named, and hydrophobia is almost unknown.

I cannot, for my own part, escape the conviction that the differences between what has taken place in France, and what has taken place in Germany, must depend upon the different attitudes assumed toward Pasteur's theories, and that the result of Pasteur's work thus far must be considered to be altogether unfortunate. So far from diminishing the ravages of rabies and hydrophobia, it seems to have increased them.

I, therefore, now repeat, in all soberness, and with a full appreciation of the responsibility of such an utterance, what I publicly stated as my conviction last January, namely, that Pasteur's method of treating hydrophobia appears to be founded upon untrustworthy experiments and unsound reasoning. And I now add to this my further conviction, that its practical results have been an increase in fear and death, and I think more strongly now than I did six months ago, that this method ought to be rejected and condemned, in the interest of humanity as well as of science.

CLINICAL OBSERVATIONS ON FIBROMYOMATOUS TUMORS OF THE UTERUS.[1]

BY FREDERICK LANGE, M.D.,
OF NEW YORK

AMONG a limited number of the fibromyomatous tumors of the uterus which have altogether come under my observation, I had the opportunity in three instances to see a rather uncommon termination of the disease, namely, in two cases by expulsion of tumor-masses after spontaneous sloughing; in the third case by shrinkage of the tumor after central suppuration and softening. In all of these cases more or less surgical help became necessary to aid the natural process, but all of them, in spite of protracted serious illness, at last ended with recovery, and illustrate, in a very eloquent manner, the ability of nature to find, in spite of serious obstacles, its way toward ultimate recovery. The following short histories may sufficiently point out the essential features of these cases:

CASE I.—On the 12th of October, 1883, I saw in consultation with Dr. Schaide, of this city, Mrs. B., then forty-five years of age, who was suffering from a large abdominal tumor, which had existed for about three years, and by a number of physicians, both here and abroad, had been diagnosticated as fibromyoma of the uterus. To Dr. S. I owe most of the following notes about her history. Mrs. B. had been advised everywhere not to have an operation done on account of the great risk attached to it. Within the last year she had been treated repeatedly for long periods of time with ergot, administered hypodermically as well as internally, but without any noteworthy success, in reference to hemorrhage as well as size of the tumor. The latter, when I saw the patient, filled, as a resistant, somewhat irregularly shaped mass, almost the entire abdomen. Having at that time already operated successfully upon several patients with exceptionally large solid uterine tumors, I proposed, in view of the intense suffering of the patient, the radical operation. The patient declined. In the beginning of November her condition became feverish, there appeared an offensive discharge from the vagina, and the patient lost rapidly in flesh. On the 18th of November Dr. S. was able to remove a piece of the tumor about the size of the fist, in a decomposed necrotic condition, from the vagina, which, for the next two weeks was almost daily followed by others of smaller or larger size. A particularly large piece was extracted from the uterus at the end of November. I then saw the patient again in consultation. To my surprise, the enormous tumor had so much disappeared that the uterus now was not larger than at about the fourth or fifth month of pregnancy. There existed still a very offensive discharge, which, however, ceased very promptly, after I had extracted from the uterine cavity the remainder of an entirely separated mass of tumor. The offensive smell of this sloughed tissue was beyond description. The uterine cavity was disinfected as thoroughly as possible, and disinfecting irrigations kept up for some time after. The patient, though very much run down, made a rather rapid recovery and was able, four weeks later, to see Dr. S. at his office. The latter had the kindness to inform me that Mrs. B. is now in perfect health. About a year ago her menses, which had become quite normal, ceased. There is no recurrence of the tumor, and the parts seem to be in an almost normal condition. So far as I remember, the mass of the tumor at my first visit must have weighed at least fifteen to twenty pounds.

CASE II.—Mrs. H., forty-six years of age, who had never been pregnant, consulted me in October last. Though otherwise in good health, she had suffered for the last two years from profuse and prolonged menstruation, now and then associated with severe pains in her back and vomiting. Within the last month, a few days before and after menstruation, a white discharge had appeared. There was no doubt that her trouble was due to a fibromyomatous tumor of such size that

[1] Read before the New York Surgical Society, May 24, 1886.

the uterus, on examination, reached within about two fingers' breadth of the umbilicus. During the time from the 12th of October to the 6th of November about eighteen hypodermic injections of Squibb's fluid extract of ergot were administered in the hypogastric region. They caused a good deal of pain and inflammatory irritation, which, however, by cold applications was kept down, so that no abscesses occurred. Small indurations, however, remained at the points of injection. During the menstrual period the patient rested at home, did not get any hypodermic injections, but took the ergot internally, fifteen to twenty drops, twice a day. On the 14th of December I was called to see Mrs. H. at her house. She had a bloody, somewhat offensive discharge from the vagina, and suffered from great restlessness and pain of labor-like character. The vaginal portion of the uterus was softened and dilated, and a soft mass could be felt within it. On the following day, under chloroform, a considerable mass, about a pound and a half, of sloughed fibromatous tumor was removed from the uterine cavity, after lateral incisions into the vaginal portion had been made. On account of the narrowness of the sexual passages and the impossibility of pulling down the uterus, I could not pass my finger high up into the uterine cavity. But I was able to ascertain that a good many necrotic irregular pieces of tissue remained undetached as yet. Two drainage tubes were introduced into the uterus, and repeated irrigations made with a warm solution of salicylic and boracic acids, and once or twice a day of corrosive sublimate solution 1 : 5000. But in spite of my endeavors, I did not succeed in preventing further decomposition. The drainage tubes were so often closed by small particles of necrotic tissue that they did not act satisfactorily. Besides that, their presence in the internal orifice seemed to be the source of constant irritation. I therefore removed them and applied irrigation several times a day, by passing a Fritsche's uterine irrigator high up into the uterine cavity, usually injecting, first a stronger solution (1 : 2000) of corrosive sublimate, followed by injection of bor-salicylic acid, according to Thiersch's prescription.

Very soon, under repeated chills and high fever, the palpable symptoms of peri- and para-metritis set in. Especially in the cavum Douglasii, where a fibroma, inserted at the supravaginal portion of the cervix, was felt before a diffuse infiltration and exudation could be made out, pushing the lower portion of the uterus toward the symphysis. Dr. Noeggerath was called in consultation, and was likewise convinced of the extremely precarious condition of the patient. It was decided to renew the attempt to remove the source of infection from the uterine cavity, and on the 23d of December, in the presence and with the kind help of Dr. Noeggerath, sloughed masses, much less, however, than the first time, were again removed, partly by forceps, partly by curette. It was discovered that from the anterior as well as from the posterior aspect, tumor-like prominences protruded toward the uterine cavity, and that the process of sloughing was particularly seated posteriorly and toward the fundus. The uterus, by this time, had already become considerably reduced in size. On the 5th of January I made a deep incision into the exudation through the posterior cul-de-sac, evacuating pus mixed with small pieces of necrotic tissue, as I supposed, from the centre of a fibroma which had undergone suppuration, and from that time, while the discharge from the uterus became gradually less, and almost daily small pieces of necrotic tissue were expelled, the patient's condition became decidedly better. Several times slight hemorrhage accompanied the expulsion of sloughs. At present, for more than a month, the discharge has entirely ceased. The uterus is very little larger than its normal size. There is still a decided induration at the seat of the para- and peri-metritic inflammation, which, however, is gradually diminishing. The general condition is very good, and twice already, if I am not mistaken, the menstrual flow has appeared again, normal in quantity and duration. Mrs. H. is now forty-seven years of age, and certainly very near the end of her menstrual life. I think there is very little probability that a new formation of fibromyomata will occur. I am under the impression that in this case the whole mass of the tumor had not sloughed, but that several lumps, together with the gradual contraction of the uterus, have disappeared either by atrophy or fatty degeneration. It seems, further, that in this case the administration of the ergot had a causal relation to the necrosis and elimination of the main part of the tumor.

CASE III.—Miss B. L., twenty-eight years of age, was in good health until four years ago, when she began to suffer from profuse menstrual hemorrhage and pain in her back, which were ascribed by a physician as due to the presence of a uterine tumor. For about three months she was treated with hypodermic injections of ergot, altogether about thirty in number, but without success. Three years ago, in making a forced attempt to prevent herself from falling down by throwing herself backward, she felt a severe pain in the abomen, and had the sensation as if something had been torn; the pain in her abdomen persisted during the summer. Ergot, internally was used again, but gave her no relief. In September, 1883, I saw the patient in consultation with Dr. Dieffenbach, when she presented a deep-seated phlegmon of the abdominal wall, apparently in the retroperitoneal space below the umbilicus. On the 15th of September, through an incision in the linea alba, a great quantity of pus was discharged; a drainage tube was passed at one point to such a depth, into a rather small appendix of the cavity, as to allow of the conclusion that it must reach to some distance into the abdominal cavity. After some time, when infiltration and pain had sufficiently ceased, it could be made out that a uterine tumor, originating from the fundus of the uterus, was adherent to the abdominal wall, and that a pus cavity passed to some distance into its mass. Suppuration went on for several months, and the tumor gradually decreased in size, having presented originally about the dimensions of a small child's head. Small, irregularly shaped calcareous masses were repeatedly washed out or extracted from the bottom of the wound. On the 31st December, 1883, after having enlarged the existing opening, I removed from the rather narrow cavity by scraping, elevator, forceps, and finger, quite a considerable quantity of calcareous spiculæ, shells, and irregular shaped bodies, in all perhaps as much as a tablespoonful. Four weeks later cicatrization was complete, and since then the patient has enjoyed perfect health. A hard lump in connection with the scar, about the size of a duck's egg, can be still felt, but does not cause the slightest inconvenience, while menstruation has at all times been normal. I cannot say what connection exists at present between the tumor and the uterus, the patient not having undergone an examination of sufficient thoroughness. It seems that in this case, through an injury, perhaps by partial rupture of the insertion of the tumor, its nutrition has been interfered with until finally central softening with suppuration occurred, which gradually led to its diminution and arrest of growth and development. No medicinal treatment was used after the operative interference.

Though quite a number of cases are on record in which, after the manner described in the preceding histories, fibromyomatous tumors have disappeared, they are rather exceptional, and withal this natural way of healing is not free from danger, no small percentage of cases ending fatally. We are, therefore, in no way entitled to trust to such an exceptional and unreliable course of the disease so far

as to give it any important weight in regard to our prognosis of fibromyomatous tumors of the uterus. We know only too well that sometimes these tumors will have an unbounded development, and, after they have attained a certain size, become dangerous, and in an imperative way demand our surgical help, and that so much more as in these cases medicinal treatment is usually nothing but loss of time.

With reference to the question, how far the extirpation of the ovaries may effectually check the development of fibromyomatous tumors, I am unable to give a satisfactory answer from my own experience. I have attempted the operation once, but only to find out that in that case the removal of the ovaries would have been a very tedious operation, and probably not much less dangerous than the removal of the whole mass. In those five cases in which, so far, I have seen the necessity of performing supravaginal amputation of the uterus for the disease in question, the tumors were of such uncommon size, and were mostly so complicated by adhesions, that it would have been no easy thing at all to get at the ovaries, and this, together with the question whether, in such cases, castration promises the desired result, has led me in all those five cases to give preference to the radical method of operating. All have ended in recovery; two of them have been reported to this Society in previous years, one being complicated with pregnancy; the third one was operated upon about a year and a half ago; of the last two cases which have been operated upon in the course of this year, I present before you the tumors removed. With reference to the third of the before-mentioned cases, I would say that it was that of a married lady of about thirty-three, who for several years at every menstrual period had bled so abundantly as to become quite anæmic, her whole way of living finally being devoted to the purpose of building herself up to withstand the drain of the next menstruation. She suffered repeatedly from very alarming attacks of weakness of the heart, which seemed to be dilated in its right half, and there was no doubt that, every other remedy having proved ineffectual, she would finally have died from the consequences of a fibromyomatous degeneration of the uterus, which, as the specimen afterward proved, consisted of a large number of tumors of different size and location, massed together in the different layers of the uterus, and forming a tumor of the size of the uterus in the seventh month of pregnancy.

The operation was performed in the same manner that I am about to describe in the following cases, and recovery took place without any untoward symptom, except that about two months after the operation the elastic ligature by which the stump of the uterus had been secured, passed away through the external os. The lady is now in flourishing health. About nine months ago she passed a considerable quantity of blood with her urine for three or four days, with some feeling of pain in her back and a general sensation as if she had her period. The urine afterward became normal, and, so far as I know, no such hemorrhage has recurred. She pretends to enjoy sexual intercourse without impairment as compared with her healthy period of married life before the operation. Lately she has become rather stout.

CASE IV.—In January of this year Miss W., thirty-three years of age, consulted me for an abdominal tumor which had been noticed for the past three years, but only lately attention had been called to it, by its more rapid growth and large size having been the source of disturbances. The whole abdomen seemed to be occupied by a resistant, rather smooth tumor reaching from the os pubis high up to the epigastrium and the free border of the ribs. The tumor was very movable and allowed of passing the fingers partly under it toward the entrance of the small pelvis, so that on the first examination it did not seem to take its origin from a pelvic organ, though its movements were communicated to the uterus. A closer examination, however, revealed a connection with the fundus uteri and made the diagnosis of a pedunculated fibrous tumor the most probable.

In this case the operation was comparatively simple. Though it would have been possible to remove the tumor without sacrificing the internal sexual organs, I still deemed it advisable to perform the supravaginal amputation for the following reasons: First, I thought of the possibility, that from its rapid growth within the last months the tumor might have assumed a more malignant character; and secondly, several small beginning fibromata could be distinguished lower down within the walls of the uterus, which if left behind would have developed further and perhaps more rapidly.

The operation was performed in the following manner. Through an incision in the linea alba reaching from the epigastrium almost down to the symphysis pubis, the tumor was slowly and without difficulty brought before the abdominal walls, the adhesions were but very slight. Enormously dilated veins occupied the broad ligaments. Then from both sides in a horizontal direction the broad ligaments were tied in several portions between two ligatures until close to the lateral edges of the uterus, and cut across. I then passed an elastic ligature under the peritoneal covering of the cervix uteri, and tied it by means of coarse silk thread. About three cm. above this ligature the uterus was amputated and thus the whole mass removed. The tissue of the stump was then excised in the shape of a funnel, so that the mucous membrane was removed as low down as the elastic ligature permitted. At the deepest point the actual cautery was applied and a small quantity of iodoform powdered over the eschar. The funnel was then closed by a number of deep catgut sutures, between which the peritoneal covering was adjusted by superficial ones. The ends of all the ligated tissues were then cauterized, sprinkled with iodoform, and the abdomen closed by peritoneal and other sutures in the usual manner. The patient had a very rapid recovery almost without any feverish reaction, and is so far entirely well.

In a case like this the operation does not present any great difficulty, nor does it involve any particular danger if only proper care is taken not to expose the patient to an unnecessary loss of blood. I think the patient, apart from the blood that was contained within the removed parts, lost hardly more than an ounce of blood. The way of passing the elastic ligature beneath the peritoneum was intended to secure a certain amount of nutrition for the stump. The latter, in fact, did not become entirely blood-

less, but presented, during the act of being tightly closed up by stitches, some slight oozing which, however, was safely checked by the sutures.

The weight of the tumor now, after a five months preservation in alcohol, is nine and a half pounds. It is throughout all its substance a fibromyoma.

The second specimen, which I present here, was obtained by an operation of much more seriousness and difficulty. In fact, the operation was only undertaken at the urgent request of the patient.

Case V.—Miss L., thirty-three years of age at the time of the operation, had from her twenty-sixth year suffered from abundant menstrual hemorrhage due to a tumor. She was treated with hypodermic injections of ergot, some of which, she states, were injected into the mass of the tumor itself and gave rise to an intense peritonitis which lasted for six weeks. No relief followed. The tumor gradually increased in size. Within the last months her suffering had become most intense. She had constant pain, was hardly able to walk, her digestion became impaired, and she lost rapidly in strength and flesh. The external examination revealed the presence of hard, lumpy, irregular masses in the lower part of the abdomen, which, on the left side, extended close to the border of the ribs. A large portion of the tumor could be felt from the vagina reaching far down into the small pelvis, displacing the os uteri toward the symphysis pubis and pushing it in an upward direction. Everything seemed fixed and immovable. On the 11th of January the tumor was removed. Gradually the numerous adhesions with the anterior abdominal wall, the omentum, and intestines were removed. There existed venous vessels in such quantity and of such enormous size as I have never seen before, and requiring careful ligation. A great difficulty was experienced in shelling out that part of the tumor, which on both sides had grown under the peritoneum between the layers of the broad ligaments. At last the cervix uteri was reached, an elastic ligature applied, and the mass removed. The rather free hemorrhage from the extensive raw surface, which corresponded to the subserous attachment of the tumor, was at last checked by ligatures, sutures, and the actual cautery. A careful toilet of the peritoneum followed and the abdomen was closed. Repeatedly during the operation the patient had very alarming attacks of heart-weakness, which obliged me to interrupt the operation and at one time apply artificial respiration. It seemed to me that these attacks depended on forced tractions which could not very well be avoided during the attempts to get under the immovable and fixed mass.

In this case the cervix uteri was entirely void of peritoneal covering, which had been lifted from it by the adjacent subserous tumor masses. The mucous membrane of the cervix was excised as in the case before, but the indication to finish the operation was so urgent that I had to desist from any further details in treating the stump of the uterus. Altogether the operation had lasted about three hours and a half. The patient had a very protracted convalescence disturbed by peritonitis and the formation of an abscess, which discharged itself spontaneously through the cervical channel. Another abscess formed itself near the anterior abdominal wall, and was opened in the line of the original incision, leaving a fistula. On the 24th of April I dilated the cervix on account of persistent offensive suppuration, and extracted quite a number of coarse silk ligatures, but was unable to find the elastic ligature, which apparently was safely encysted. Several other ligatures were removed through an incision in the abdominal wall a few centimetres to the left from the original cut, and since then the discharge has almost entirely disappeared; the patient does not suffer any more, and can be regarded, I think, as definitely convalescent. The weight of the alcohol specimen is ten pounds.

I may be permitted to add, that a patient from whom I removed the uterus for myxosarcoma about four or five years ago, and whose specimen and history were presented before this Society, is so far enjoying good health. I saw her about one year ago, and there was no evidence of any recurrence of the disease. She promised to let me know if in any way she should be troubled.

I should also like to mention a case of multiple fibromyomata of the uterus, in which my operative efforts were not followed by such good fortune:

Case VI.—A recently married woman of about thirty years, nullipara, had been suffering similarly to the above-mentioned patients during her menstrual period. Lately, a great deal of pain and tenderness in the hypogastric region had supervened, and the patient, asking far a radical curative effort and having exhausted other treatment without success, was subjected to laparomyomotomy. Two pedunculated fibromata about the size of a small fist were found, arising from the fundus uteri; the one impacted in Douglas's space was easily recovered after ligating the pedicle. The other, to the right side of the uterus and in front of the broad ligament, had become necrotic in consequence of torsion of its pedicle, and was embedded in a sac of adherent peritoneum, which, however, could be detached without great difficulty. There was no exudation of pus or fluid. The tumor looked gray, with a greenish tint, and contained no fluid blood. I tried to tie the pedicle within its living part, but a small necrotic portion remained beyond the ligature. A third myoma, about the size of a small hen's egg, was broadly inserted on the anterior wall of the uterus right above the cervix, and for its removal and shelling out a thin layer of uterine tissue had to be severed. There was considerable capillary oozing from the bed of the tumor, and the efforts to check the hemorrhage by Paquelin's cautery, stitches, and ligation, made the operation prolonged. Death occurred on the third day, apparently from septic peritonitis. No autopsy was conceded.

I presume the infection may have started from the place where the necrotic fibroma was embedded. Here, perhaps, infectious germs existed, which, though made harmless for the time by the adherent peritoneum, were set free by the operation, and found outside of their prison very favorable chances for their deleterious action. The torsion of the pedicle illustrated very beautifully the way in which such tumors at last might be deprived of their blood supply, and finally undergo retrogressive metamorphosis.

With reference to the supravaginal amputation of the uterus, I should like to mention, in a few words, the different ways in which the uterine stump is secured and treated. Thus, as previously in ovariotomy, the extra- and intra-peritoneal method stand against each other, and on both sides equally good results are obtained. Schröder and Martin, in their very extensive practice, trust to tight suture of the stump after funnel-like excision. Schröder first advised étage suture. They do not use the permanent elastic ligature, and are strong advocates of the intraperitoneal treatment. So is Olshausen, who uses the elastic ligature, Rose, and others; while extraperitoneal treatment is given preference by Hegar,

Kaltenbach, Péan, and others, as involving less risk in reference to septic poisoning, and leaving the stump accessible in case of secondary hemorrhage.

There exists, perhaps, no more striking illustration of the safety of aseptic proceeding than the fact that such large masses of tissue or the ligated stump of the fibromyomatous uterus can be left in the abdominal cavity, deprived of blood supply, without undergoing decomposition, and giving rise to infection. On the other hand, it cannot be doubted that a certain amount of risk will always be attached to their way of acting, and that those methods which secure nutrition to the stump with intraperitoneal treatment will have to be regarded as the most proper ones. That good results can be achieved by the extraperitoneal method nobody will doubt, and repeatedly successful cases of it have been reported to this Society. I am, however, convinced that, by-and-by, just as it has been with ovariotomy, the intraperitoneal treatment will be more and more adopted. I should certainly give preference to Schröder's method of securing the stump by tight étage sutures, above all others, if with reference to hemorrhage I should regard it as free from all danger. It may be safer in the hands of operators, who are working on such a large scale as Schröder and Martin do. I must myself concede, that heretofore only the apprehension of a possible hemorrhage has prevented me from following them. In order to combine the advantages which the elastic ligature offers in regard to hemorrhage, with those offered by suturing the stump, I have tried, in one of the above cases, to apply the ligature beneath the peritoneum, so that a certain amount of blood can be furnished to the stump through its peritoneal covering, which, of course, must be detached as little as possible above the ligature. Further observations will have to be made, in order to ascertain whether this procedure will always yield as good results as it has in my case as above recorded.

One mechanical contrivance I would mention, and of which I like to make use in all abdominal operations wherever practicable, is Thiersch's ligature spindles, with or without holder, which I have presented at a former meeting of this Society. They are, indeed, very handy, and allow of securing pedicles and fleshy adhesions with more constricting force, than can be exerted in the ordinary way of tying.

The abdominal incision ought to be long enough to allow of an easy access to the operating field. I certainly prefer too large an incision, to one which obliges the operator to work in the dark, or to do uncertain manipulation. For this latter reason, often one of the principal dangers in these operations is incurred, namely, unnecessary and abundant loss of blood, simply because the operator does not in time and with easiness get at the bleeding point. If one has seen those enormously dilated veins in these tumors, one must be convinced that bleeding from such a vessel for a very short time must be sufficient to endanger life. For this reason, also, every undue tearing force ought to be avoided, and it is safer and more wise to work slowly and cautiously, than to hurry at unnecessary hazard. The length of the abdominal incision adds almost nothing to the danger and gravity of the operation, and incisions of fifteen or more inches will heal without difficulty. To obviate loss of warmth from extensive denudation of intestine, the use of large, flat sponges dipped in a weak aseptic fluid seems to me the most commendable.

MEDICAL PROGRESS.

Water Purification.—At a recent meeting of the Institution of Civil Engineers, the paper read was on "Water Purification: Its Biological and Chemical Basis," by Percy F. Frankland, Ph.D., B.Sc. F.C.S. The earliest attempts to purify water dealt simply with the removal of visible suspended particles; but later, chemists turned their attention to the matters present in solution in water. Since the advance of the germ theory of disease, and the known fact that living organisms were the cause of some, and probably of all, zymotic diseases, the demand for a test which should recognize the absence or presence of microörganisms in water had become imperative. It was, however, only during the last few years that any such test had been set forth, and this was owing to Dr. Koch, of Berlin. By this means the only great step which had been made since the last Rivers Pollution Commission had been achieved. It had been supposed that most filtering materials offered little or no barrier to microörganisms; but it is now known that many substances have this power to a greater or less degree. It has also been found that, in order to continue their efficiency, frequent renewal of the filtering material is necessary.

Vegetable carbon employed in the form of charcoal or coke was found to occupy a high place as a biological filter, although previously, owing to its chemical inactivity, it had been disregarded. Being an inexpensive material, and easily renewed, it is destined to be of great service in the purification of water. Experiments were also made by the agitation of water with solid particles. It was found that very porous substances, like coke, animal and vegetable charcoal, were highly efficient in removing organized matter from water when the latter came in contact with them in this manner. Also, it was found that the well known precipitation process, introduced by Dr. Clark, for softening water with lime, had a most marked effect in removing microörganisms from water. In the case of water softened by this process, it was found that a reduction of 98 per cent. in the number of microörganisms was effected, the chemical improvement being comparatively insignificant.

Water which had been subjected to an exhaustive process of natural filtration had been found to be almost free from microörganisms. Thus, the deep well water obtained from the chalk near London contained as few as eight organisms per cubic centimetre, whereas samples of river water from the Thames, Lea, and Wey had been known to contain as many thousands. The water supplied to London had been regularly tested during the last fifteen months, and most important and valuable information had been obtained as to the efficiency of the processes to which the water companies subjected the water supplied by them in removing microörganisms, the average reduction during the last four months of the past year having been 97.9 per cent. for the Thames

and 93.7 per cent. for the Lea. The biological testing of waters is of especial value to waterworks engineers, for they now have a means of ascertaining with exactitude the working condition of filter beds, instead of following the empirical methods generally in use.

ANTISEPSIS OF THE DIGESTIVE TRACT.—In a recent work on gastric dilatation, LEGENDRE presents a discussion of intestinal antisepsis, which may be summarized as follows:

A medicament administered for the disinfection of the digestive tract should be but slightly, if at all, absorbable.

It should be capable of administration in efficient doses without producing toxic effects, and must exert its specific effect in the long transit from mouth to anus.

The salicylate of bismuth, recommended by Vulpian, is of interest in this connection. The salt is gradually decomposed in its passage through the intestine into a black sulphide, with a simultaneous slow liberation of salicylic acid, which is subsequently eliminated by the kidneys.

Iodoform, exhibited for the same purpose, is slightly decomposed, traces of iodine being found in the urine, and the major portion of the drug passing out unchanged with the feces.

Naphthaline is similarly excreted, the urine being slightly tinged, though the greater part of the dose is unchanged by digestive fermentative action. Bouchard strongly recommends the following mixture for typhoid and other similar putrefactive conditions of the intestinal contents:

Glycerine	200 parts.
Pulverized charcoal	100 "
Naphthaline	5 "
Iodoform	1 part.

A teaspoonful of the mixture is given in a wineglassful of water every two hours.

In gastric trouble, with diarrhœa of less intensity than in typhoid, the naphthaline may with advantage be administered alone, as follows:

Naphthaline,	
Pulverized sugar	āā ℈iv.
Oil of bergamot	gt. j.

This is mixed and divided into twenty powders, one of which is given every hour.

The last two methods of treatment are more efficacious than the administration of salicylate of bismuth, or of water saturated with carbon disulphide. The relative value of these various methods of intestinal disinfection has been experimentally determined by intravenous injections of the diarrhœic flux obtained before and after each method of treatment respectively.—*Revue de Thérapeutique*, May 15, 1886.

COMMENCEMENT OF DROPSY AS A POINT IN DIAGNOSIS.—DR. B. W. RICHARDSON speaks as follows in *The Asclepiad* for April 25, 1886:

Apropos of the subject of dropsy, there has seemed to me to be one very good mechanical indication for distinguishing whether dropsical effusion springs from disease of the heart, or from disease of the liver, or the first local seat of the effusion. If dropsical effusion begins in the lower extremities, and proceeds to the abdomen, the evidence is fairly sound that the obstruction is direct from the heart, and that the liver is free, the stagnation and transudation being due to a failure of the return column of blood from the extreme parts. If, on the other hand, the accumulation of fluid begins in the abdomen, and extends to the lower limbs, the evidence is equally good that the arrest of the circulation is in the hepatic system. This distinction may be of moment sometimes in deciding on the question of tapping. In a case where the dropsy occurred first in the extremities, and afterward in the abdomen, it would be good practice to delay the tapping until the effect of removing fluid by puncture of the lower limbs had been carried out. But in a case where the effusion is, primarily, into the peritoneum, and afterward into the extremities, tapping the abdomen would have a prior place to puncture. The rule would run, in cases where there are ascites and anasarca: Tap for primary ascites, puncture for primary anasarca. I refer, of course, in this note to chronic ascites and chronic anasarca uncomplicated; not to special dropsies of local origin, like ovarian cysts, and not to dropsy from renal disease.

PEPTONURIA.—From an elaborate paper, containing the results of 810 urinalyses, by PACANOWSKI, the following points of clinical interest may be extracted: Acute peptonuria was found in 25 out of 36 cases of abdominal typhus. Chronic peptonuria existed in 11 out of 25 cases of phthisis pulmonalis. It was chiefly to be found in the beginning of the disease, and was only exceptionally present after the origin of cavities.

In six cases of carcinoma (œsophageal, gastric and intestinal) peptone was constantly present in the urine. —*Centralb. f. klin. Med.*, May 15, 1886.

LOCAL APPLICATIONS FOR USE IN NEURALGIAS.—The *Revue de Thérapeutique* for May 15, 1886, gives the following formulæ.

Intercostal neuralgia may be greatly relieved by daily gentle inunctions with a portion, of about the bulk of a pea, of a pomade thus constituted:

Morphine chloride,	
Veratrine	gr. iss.
Cold cream	℈iv.

In lumbago or painful contraction of the muscles of the back a liniment containing one part of tincture of capsicum in six parts of olive oil, is advantageously applicable. If its infriction be painful, it may be applied on flannel.

INCIPIENT BALDNESS.—In commencing alopecia, VIGIER advises the use of the following formula, in which the proportions are given by weight:

Alcohol (80°)	℥xx.
Camphorated alcohol,	
Rum,	
Tincture of cantharides,	
Glycerine	āā ℈iv.
Essence of sautal, wintergreen, laurel roses	āā gtt. v.
Muriate of pilocarpine	gr. viij.

The mixture is gently rubbed on the scalp once daily. —*Revue de Thérapeutique*, May 15, 1886.

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SATURDAY, JUNE 12, 1886.

THE DISINFECTION OF RAGS.

THE controversy which has been going on between the health officers of certain ports and the importers of foreign rags brings to mind the old saying about sanitarians and men of business, viz., that the first would have everything considered dangerous until it is proved to be harmless, while the second would consider everything harmless until it had been proved to cause evil. The wise course in this, as in many other things, is between the two extremes.

Judging by the experience of the past, there is very little danger of the introduction of cholera into this country from the importation of baled rags even when these are collected in countries in which cholera has recently prevailed. The cholera germ does not appear to possess such vitality as to be able to endure for a month or more the conditions in which it must be placed in baled rags; and, as several months must almost always elapse between the collection of rags in a foreign country and their arrival at our ports, it is not surprising that thus far there is no known instance of the introduction of cholera in the United States by this channel. It is theoretically possible that rags wet with cholera discharges, and kept moist, might, by unusual promptitude in shipment, reach this coast in time to be dangerous, but this contingency is a remote one.

It would seem, therefore, that the importers of rags have a right to complain when baled rags coming from a country in which there has been no cholera for several months are forbidden admission except under conditions as to disinfection which largely increase their cost, and especially when such restrictions are enforced only at certain ports, while at other ports the same rags are admitted freely. Under such circumstances they claim that little or no protection is afforded the public health, and that the only practical result is specially to tax certain importers, and to drive away trade from the ports where the health officers make unreasonable demands. It is a particularly unfortunate feature of the present controversy that the form of disinfection insisted on by certain health officials is practically that controlled by a patent, the owners of which have a monopoly and charge six or seven times the actual cost of doing the work.

On the other hand, the health officer is bound to resist the pressure of commercial interests of his own port, when these urge him to a course which he believes to be dangerous to the health of the country at large, and he has to consider not only the real danger, but, to some extent, popular opinion as to the danger, since, if he do not, he runs a risk of bringing about more or less suspension of trade with his own port on the part of the interior of the country.

The conclusions of the New York Chamber of Commerce, which has been for some time engaged in investigating the rag disinfection controversy at that port, are that the health officer of the port of New York has been injudiciously severe in his requirements, and the Chamber lays great stress on the desirability that quarantine regulations affecting merchandise should be the same at all ports, and that therefore the whole business of quarantine should be managed by the General Government. Admitting this to be true, as, with some minor limitations, we are disposed to do, it is nevertheless very certain that at present there is not the slightest probability of Congressional action in this direction.

The matter must be settled by State and Municipal Governments and their officials; but these last, if they are wise, will not lay themselves open to the suspicion that they are actuated rather by a desire to promote the interests of the stockholders of a particular disinfecting company than a desire for the public good. The danger should be urgent and clearly demonstrable to justify their taking such a risk.

Where there is evidence sufficient to justify an impartial man that baled rags arriving at one of our ports have come from a cholera-infected port, or have been recently collected in a cholera-infected country, public opinion will justify a health officer in almost any precautions he may see fit to take, even to the total exclusion of the suspected bales; but in the absence of such evidence, and when the rags are accompanied by a positive certificate from a consul as to the circumstances under which the rags have been gathered and shipped, indicating the absence of cholera in such localities, we do not be-

lieve that it is justifiable to compel the importer to submit to the cost of a special patented disinfection process.

PASTEUR'S METHOD OF TREATING HYDROPHOBIA.

IN connection with the paper of Dulles on Pasteur's recent communications in regard to rabies, it is interesting to note that FRISCH has just made an elaborate report to the Society of Physicians of Vienna giving the result of his personal investigation of Pasteur's method, made in Paris at Pasteur's laboratory, as the selected representative of the Austrian medical men. This report seems to have been misunderstood by some medical journals; they have reproduced the version of it given in a number of French papers, which speak of it as expressing unreserved praise of the method of Pasteur, and as expressing the opinion that it should be adopted by all the physicians of Austria. In concluding his report Frisch actually says: "It is not yet possible to pronounce with certainty upon the value of the preventive treatment . . . but there is nothing to prevent a repetition of M. Pasteur's experiments."

From an interesting account of the meeting at which this report was made, which appears in the *Deutsche medicinische Wochenschrift*, for April 29, 1886, we find that Frisch expresses some very serious objections to the acceptance of Pasteur's method. He says: "It is easy to show what kind of experiments should have been performed before the experiment on human beings was indicated. A number of animals should have been subjected to the bite of a rabid animal. Part of the bitten animals should receive the preventive inoculations, the others not. If the method is effective the first animals would remain healthy, the others would die of rabies. Still, even this procedure might not be just the right one, since infection might not take place in all the animals with equal certainty. But there is a method which would preclude all doubt. Pasteur has manufactured a rabic virus which leaves nothing to be desired in the activity and certainty of its action. This rabic virus must be injected into animals, and, as in the first case, it must be shown that the animals are thereby uniformly killed. It must be shown, on the other hand, that when 'preventive inoculations' are afterward practised upon animals which have been inoculated with the deadly virus, rabies does not appear. This is an experiment analogous to the case of human beings who have been bitten. But we seek in vain to learn that such experiments have been undertaken. And can we understand what a contradiction is involved in such experiments? If a human being infected with the deadly rabic virus can be cured by supplementary inoculations, if an animal which has been experimentally infected with the same sort of virus can be preserved from rabies by a similar procedure, then the whole procedure of actual preventive inoculations is useless and senseless. For, why is it necessary to administer the rabic virus at first in minimal and then in gradually increasing doses, since the cure of rabies in human beings and lower animals by such inoculations would show that it is possible to give the strongest and most murderous dose at first, and one need only administer the weak attenuations of the virus after this."

It will be seen that Frisch points out the fact that none of Pasteur's experiments for the protection of lower animals from the effects of inoculation of rabic virus are analogous to the application of his method to mankind. In the former, animals were prepared for the inoculation of a presumably effective virus by previous inoculations with a presumably weaker one. In the latter case the presumably effective virus is inoculated a considerable time before the inoculation with the weakest virus. Notwithstanding this, if the application of Pasteur's method to mankind demonstrated that it is useful, we might well overlook the illogical process of reasoning by which he has arrived at it, and acknowledge that Pasteur has made a lucky hit which a more logical worker might have missed. As yet, however, it must be admitted that there is no conclusive evidence that Pasteur has rescued a single patient from the effects of an inoculation with rabic virus, which without his intervention would have been followed by hydrophobia, while the cable this week brings us news of another (the eighth) death, while under his care, this being a patient upon whom he began his inoculations within fourteen days after the bite was received. In view of these facts, it is not hypercritical to ask for positive proof of the correctness of a claim which is not logically established by the argument of the claimant.

THE TEMPERATURE OF PERIPHERAL PARTS.

OUR knowledge of the relations of the peripheral temperature of the body has been considerably increased by the observations of SCHWARZ, which appear in *Deutsches Archiv f. klin. Med.*, Bd. xxxviii. A thermometer of special construction was used, and the space between the first and second toes was chosen as the most suitable locality. The observations were continuous, extending over many hours, and the records taken every fifteen minutes. The axillary temperature was taken as the standard of comparison.

It was ascertained, in the first place, that in health the difference between the temperature of the fingers and toes was trivial and the variations in the corresponding regions of the body very slight. As a result of the continuous mode of observation, the interesting fact was elicited that in healthy per-

sons two stages could generally be recognized: a period in which the temperature was very much lower than that of the axilla and a period in which it almost or fully equalled it. The period of low and variable temperature, which he terms amphibolic, may last from fifteen minutes to five hours, and in some instances is not present, but the axillary and interdigital readings may be the same from the outset. In twelve observations the average duration of this amphibolic period was one and a quarter hours. Reckoning as normal that stage in which the highest temperature is reached and maintained continuously, we may say that the peripheral temperature is not more than 0.9° to 1.8° F. below that of the axilla. The reason of this preliminary depression is not very clear, but it is possibly associated with vasomotor disturbance.

In afebrile patients the observations did not lead to any very striking results. The higher temperature in paralyzed limbs is well known, and in a case of cerebral hemiplegia the maximum temperature was reached very slowly, not until five and a quarter hours, and then was nearly 7.2° F. higher on the affected than on the sound side. An interesting contrast to this was afforded by a case of hysterical hemiplegia in which the difference between the sides was very slight and the amphibolic stage scarcely existed. In the paraplegia of myelitis and in tabes the peripheral temperature was continuously low, as a rule, and there were great variations between the sides.

In fever the initial stage of low temperature is short, a higher grade is quickly reached, and there are greater variations than in health. A large number of records were made with a view of testing the action of various antipyretics on the peripheral temperature, and it was found that in the cases, twenty-five in number, in which the thermometer between the toes registered 94.3° F. at the time of administration, there was invariably a rise in the temperature, while in thirty-two cases with a peripheral temperature above 96.8° F. this never occurred.

While in health the peripheral temperature never exceeds that of the axilla and in febrile patients it very rarely does so, Schwarz has called attention to an interesting condition which he terms peripheral fever, in which, with a normal axillary temperature, the thermometer at the periphery may register several degrees above the normal. This was met with in a case of biliary cirrhosis with intense jaundice in which the axillary temperature was 100.4° F., and the peripheral, as measured between the toes, from 104° to 105.8° F. The measurements extended over from five to seven hours during several days. The patient complained of a severe sense of burning and great heat in the extremities, and could not bear heavy bedclothes though the season was winter.

A practical lesson to be derived from these observations relates to the time which must be allowed in testing the peripheral temperature. The low records of Davy and others were evidently due to the neglect of this precaution. To be of any value, the preliminary period of depression, which is variable in different individuals, must be taken into account.

FATAL RESULTS FROM "SPLITTING THE CERVIX."

DIVIDING the cervix at the external, or at the internal os, or in the intervening portion, though not long since a comparatively frequent operation for dysmenorrhœa or sterility, is now very rarely done. Most operators now turn to dilators for the treatment of cases where incision was formerly done; one wing of the army of gynecologists still fights under the same banner of mechanical uterine pathology, only in place of hysterotomes, its enthusiastic soldiers use dilators. Possibly it is only a question of time when many of the dilators will be placed in the grave beside the hysterotomes, if the teaching of men like Duncan, Schultze, and Williams prevails, and the mechanical theory of uterine disease is cast aside.

However this may be, we have been somewhat astonished to know of the mortality which Sims had from this operation. Pajot states, in a recent lecture, that he knew of at least four deaths of women upon whom Sims had performed his operation of division of the cervix, and he believes that other similar accidents happened to him. In the light of these facts, the profession is to be congratulated upon the fact that the operation has fallen into disuse.

SOCIETY PROCEEDINGS.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Eighth Annual Session, held in the Hall of the College of Physicians of Philadelphia, May 27, 28, and 29, 1886.

THURSDAY, MAY 27—FIRST DAY.

AFTERNOON SESSION.

DR. F. H. HOOPER, of Boston, presented a paper

CONCERNING THE POSITIONS OF PARALYZED VOCAL BANDS.

The paper was, in part, based on experimental work done in the physiological laboratory of the Harvard Medical School, and in part theoretical. Specimens and drawings, illustrating certain points, were shown. The reader stated that it was his purpose to inquire into certain influences which might combine to determine the positions of paralyzed vocal bands, and to ask whether we are always justified in assuming that a given position of an immobile band is indicative of the arrested function of this or that muscle of the intrinsic laryngeal groups. The speaker thought that a vocal band might assume different positions in cases of complete paralysis of the recurrent nerve, and he passed

in review certain anatomical factors and physical causes which he thought might contribute toward producing the position which might happen to be present when seen reflected in the laryngeal mirror.

Dr. Hooper concluded by saying that in his judgment the larynx is such a complicated organ, subject to such changes at different stages of life, of a shape so different in different individuals, its nerve supply so great, and the arrangement of its muscles so liable to anomalies, that as surely as one attempts to formulate theories on the positions alone of paralyzed vocal bands —positions which may be controlled by intrinsic muscles of the larynx that are not paralyzed, as well as by those that are—just so surely will one be led unconsciously into erroneous inferences.

DR. J. SOLIS COHEN, of Philadelphia, then related

THE FURTHER HISTORY OF A CASE OF PARALYSIS OF THE POSTERIOR CRICO-ARYTENOID MUSCLES PRESENTED AT THE FIRST MEETING OF THE ASSOCIATION IN 1879, WITH A REPORT OF THE AUTOPSY AND THE EXHIBITION OF A SPECIMEN.

The history of the case was briefly given as follows. A man, aged forty-eight years, was brought to the writer with a history that for two years he had suffered from occasional spasm of the larynx so that on at least two occasions he had fallen unconscious in the street. When a boy he had suppurative inflammation of the left ear, and ever since then the introduction of the finger into the ear would produce spasm of the glottis. Examination with the mirror showed what was then considered to be the picture of paralysis of the left posterior crico-arytenoid muscle. The examination produced spasm on the other side. The patient was directed to carry with him nitrite of amyl, to be used when the attacks came on. This he did for a while with good results. He subsequently returned with the statement that the day before he had had a severe spasm from tickling in the ear, and while illustrating this he had a violent attack in the office, requiring the use of chloroform to relieve it. The next day tracheotomy was performed. No other lesion could be found at that time. The spasms were still produced by irritation of the ear. Five or six weeks later he began to have paralysis of the right vocal band. The picture then became extreme, and after this time the larynx was never seen in any other position. The man gradually became blind and developed symptoms of locomotor ataxia. During the four years preceding his death he continued to wear the tube. He was able to speak well without occluding the tube. With the condition of abductor paralysis, there was apparently a condition of spasm of the adductors.

At the autopsy all the parts that could be available in the examination were removed and submited to Dr. William Osler for examination. No abnormal appearance was discovered in the brain. The optic nerve was small, grayish-white, and atrophied. Many microscopical sections were made of various parts. The left recurrent nerve seemed natural, though it will be remembered that the left cord was the first affected. The right recurrent showed a distinct line of demarcation between the healthy and the unhealthy fibres. Instead of the right muscle being atrophied, it was the left muscle which had undergone wasting.

DR. FRANK DONALDSON, JR., of Baltimore, then read a paper entitled

THE FUNCTIONS OF THE RECURRENT LARYNGEAL NERVE FROM AN EXPERIMENTAL STUDY IN JOHNS HOPKINS UNIVERSITY.

The speaker first referred to the fact that all the muscles with the exception of the crico-thyroid are supplied by the recurrent laryngeal nerve. The nerve, therefore, contains fibres controlling both phonation and respiration, acting both upon the abductor and upon the adductor muscles. He then referred to the experiments performed by Dr. Hooper, of Boston, the results of which had been presented at the last meeting of the Association. Dr. Hooper had found that the constrictors ceased to act when consciousness was suspended by the action of ether, and that abduction with dilatation of glottis was obtained by stimulating the recurrent laryngeal nerve when consciousness was suspended. Dr. Donaldson's experiments were made to test the correctness of these results. In five experiments under states of deep narcosis, slight narcosis and almost complete consciousness, he invariably got adduction of the vocal bands under the application of stimuli with the induction coil at ten. In one case in which consciousness had been suspended, under slight stimulation, abduction was produced, while under strong stimulation adduction was obtained. It was then found that abduction was always produced when weak currents were employed, but adduction was obtained when stronger stimuli were used. He, therefore, concluded that the constrictors did not cease to act during profound narcosis or in suspension of consciousness from any cause, and that abduction is not always obtained when consciousness is suspended; it is with weak currents that abduction is produced, but as the stimulation is increased adduction takes place. (Dr. Donaldson's paper will appear in full in *The American Journal of the Medical Sciences* for July, 1886.)

DR. F. H. HOOPER, of Boston, said that personally he felt very much indebted to Dr. Donaldson for having taken up this work, for it is only by getting many interested in the subject, and bringing forth their results and comparing and criticising them that we can ever hope to arrive at the truth. Dr. Donaldson had prepared his paper in the friendliest spirit toward him, but it would have been more gratifying if he had read the speaker's paper on "The Respiratory Function of the Human Larynx" with closer attention and then quoted it correctly and accurately. He objected very strongly to the wholesale manner in which he had been misrepresented, yet he recognized that it was unintentional on the part of Dr. Donaldson, who very oddly got the idea from reading his paper that *none* of Dr. Hooper's experiments had been verified. If such had been the case, the paper would never have been presented to this Association. Dr. Donaldson had laid great stress upon what he called the speaker's *theory of the innervation of the larynx*. He was not aware before that he had a theory on the subject. In his paper of last year he detailed the results obtained from certain experiments, and, in passing, offered, more as a suggestion than anything else, that they might be explained in a certain way. Dr. Donaldson had expressed agreement with him upon one point in which he least expected support, and has

disagreed with him upon points that admit of no doubt, and are so firmly established by repeated experiments, that he is convinced that the reason why Dr. Donaldson failed to confirm his observations was due to some error in Dr. Donaldson's method of experimentation. In regard to another small oversight, Dr. Donaldson had declared that he said that he had observed the same effects with morphine, chloral, and chloroform as with ether. Dr. Hooper had never made such a statement.

DR. F. I. KNIGHT, of Boston, thought we must bear in mind that these experiments have been performed upon lower animals and not upon man and even if a certain unanimity of opinion is reached, we shall have to adapt these results to the case of man by clinical and pathological observation. It does not follow that the same mechanical action takes place in the opening and closure of the glottis in man as in the lower animals. Although stimulation of the transversus muscle produces approximation of the cord, still, in considering the articulation of the cartilages it had always seemed to him that there must be some other factor, and that the lateral muscle is stimulated at the same time. In regard to abductor paralysis, he held that the whole question should be decided upon the position of the vocal process without any reference to the cord. If the vocal process is found in the median line, it is fair to assume that for some reason the function of the abductor muscle had been abolished. A good deal of difficulty has been experienced by observers in determining when the vocal process is in the median line. To him the crucial test is that of phonation; if you get a vertical glottis on phonation without any movement of the suspected cord, you have a sure case. With reference to the question of spasm, he considered it absurd for any one to consider these cases of what we call abductor paralysis to be cases of spasm. Who ever heard of a muscular spasm lasting for years without any relaxation? He did not refer, of course, to what is called by surgeons muscular contraction, but to real spasm, which, in the cases he had seen, had been more or less intermittent.

DR. S. SOLIS COHEN, of Philadelphia, in referring to the question of spasm, said that he could show several cases in which there was constant spasm as the result of an irritative lesion. In one case of injury of the spine, resulting in pressure on the cord, there was spasm of the extensor muscles on one side, and of the flexors on the other. He thought the point not well taken. It is important to distinguish between the automatic (respiration), the reflex (cough), and the psychic (phonation) functions of the larynx. A well-known physiological law is that the resistance which a nerve offers to the transmission of nervous force is inversely as the use made of the muscle which it innervates. No muscle is used more than the abductors of the larynx. The resistance of their nerves would, *a priori*, then be supposed to be the least, and Dr. Donaldson's experiments show that they respond to a weak stimulus. The phonatory muscles are not so frequently used, the resistance of their nerves, though low, is higher than that of the respiratory fibres. The respiratory impulses traverse the nerve continuously, and additional stimulation, whether reflex (irritation of the superior laryngeal), producing cough, or psychic, for purposes of phonation, produces adduction of the vocal bands. There is a local centre in the medulla, the vaso-accessorius nucleus, for all the laryngeal muscles. Moderate stimulus from the respiratory centre opens the glottis for respiration; increased stimulus opens it further; a greater increase, say by reflex irritation, closes it for cough; an impulse from the cerebral cortex, the centre of voluntary motion, closes it for speech.

DR. F. I. KNIGHT, of Boston, presented a paper on

LARYNGEAL VERTIGO.

A number of cases of what is called laryngeal vertigo have been reported by various authors. The distinctive feature of these cases is that attacks of coughing are followed by giddiness and momentary loss of consciousness. This latter symptom was present in all but two cases. While it is probable that attacks of dizziness after coughing are not rare, yet but little attention has been paid to the subject. The writer had been able to find fourteen published cases; to these he would add two coming under his own observation. The first case was that of a man aged forty-two years, who had a chronic bronchitis of one year's duration. He had had rheumatism when fifteen years of age, and on one occasion had suffered with insomnia. No morbid condition of the heart was detected. The chest was filled with sonorous and sibilant râles. Under the use of iodide of potassium there was gradual improvement. After a day of worry and fatigue, he had a cough, followed by loss of consciousness. There was no evidence of spasm of the glottis, and no convulsive movements. He never had another attack of loss of consciousness.

The second case was that of a lady forty-seven years of age, who had previously been the subject of attacks of dizziness, the result of indigestion. She had suffered with winter cough for a number of years. During one attack of coughing she lost consciousness. During this time there was congestion of the face.

The following points were obtained from a study of the reported cases: All the cases, with the exception of one, have been in males. The average age at which the attack had occurred had been forty-seven and one-half years. The cough, which induced the attack, was slight in six cases, spasmodic in two, and severe in three. Momentary loss of consciousness occurred in fourteen cases. In one case the patient fell, but declared that he had not lost consciousness. Dizziness is mentioned in eleven cases; in four cases there seems to have been decided evidence of laryngeal spasm; in one this was doubtful; in four cases there was marked congestion of the head and face; in two the patients were pale. Convulsive movements of the limbs occurred in three cases; in one, the movements affected the face and head, and in another the face. In these cases there was no biting of the tongue, no frothing of the mouth, and no involuntary micturition. The speaker objected to the term laryngeal vertigo. There probably is no real vertigo in these cases in the sense of the vertigo seen in aural vertigo, there is simply giddiness or lightness of the head. These cases cannot be considered to be cases of petit mal. The cause of the attacks is disturbance of the cerebral circulation, perhaps due to the compression of the large bloodvessels of the chest and perhaps the heart. Even without this, the effect of rapid breathing is well known. This causes marked cerebral disturbance.

A paper by DR. FRANK DONALDSON, of Baltimore, entitled, *A Case of Congenital Defect of the Epiglottis, Illustrating its Function*, was read by title.

DR. D. BRYSON DELAVAN, of New York, then read a paper on

LINGUAL TUBERCULOSIS.

He had seen six cases of this affection. In the reports of twenty-four cases of tuberculosis of the tongue, in all but one the subjects were males. In twelve cases the lesion was anterior, in seven upon the side, and in one at the base of the tongue. In four the situation was not stated. The disease was primary in nine cases; secondary in seven cases. In the remaining cases it was not stated whether the disease was primary or secondary. The longest duration of a case of primary tuberculosis was two and one-half years, the shortest ten weeks. The age of the oldest person affected was seventy years, and of the youngest, not under twelve.

The first case coming under the speaker's observation was H., aged thirty-five, a laborer. His family history and previous history were good. The man was remarkably robust. Six weeks before coming under observation, he experienced pain at the base of the tongue. This pain became excessive, and at the end of two weeks he was obliged to give up work. On examination a fissured and ulcerated surface was found at the base of the tongue on the right side. This lesion was indurated. In the centre was a large ulcer with large flabby granulations. On the right side, externally under the angle of the jaw, was a hard tumor about the size of a chestnut. There was slight fetor of the breath. The diagnosis was uncertain. The pain was so severe as to prevent sleep. An application of a four per cent. solution of cocaine checked the pain for five hours. The patient's condition became so serious that he was removed to the New York Hospital, where under the idea that the disease was epitheliomatous, the complete removal of the tongue was made. The patient recovered rapidly from the operation and there was marked improvement in the general condition. It has been impossible to find any evidence of disease of the lungs or other internal organs. On microscopic examination all the parts presented abundant tuberculous material. A point of interest in this case is, that this is the first case on record in which such an operation has been followed by an apparent cure. Of course, sufficient time has not elapsed to speak positively as to the ultimate result. The operation was done in the latter part of December, 1885.

In a second case of tubercle of the tongue, the patient P. O., aged twenty-seven, gave no history of hereditary tuberculosis. Began to run down two years ago and developed chronic laryngitis. When examined he presented evidence of advanced tubercular disease. The larynx was ulcerated. There was also a lesion on the right tonsil and one on the left. The pain on swallowing was severe. Iodoform gave but little relief. Temporary ease was given by cocaine. An application of lactic acid was made to the right tonsil, and two days later it was much improved. This was repeated and the improvement continued for two weeks, when the patient began to run down and died. The bacillus tuberculosis was not found, but the man had evident pulmonary tuberculosis.

The third case was that of a man aged forty-three. Family history good. No history of specific disease. He was well until ten months ago when his strength began to fail and cough came on. Two months ago the throat began to grow sore, and within the last two weeks this has increased. Careful examination of the chest failed to reveal any evidence of disease. Examination of the fauces showed ulceration extending out along the upper border of the uvula. Later the signs of pulmonary involvement became evident. Applications of lactic acid gave only temporary benefit. In this case, the disease has extended along the gum.

Three other cases of somewhat similar character were reported.

DR. E. L. SHURLY, of Detroit, held that in these cases of so-called primary tuberculosis mistakes of diagnosis are sometimes made. We do not diagnose the presence of other lesions when we should, and sometimes we diagnose as tubercle that which is not. He was not sure that the bacillus can be regarded as an absolute evidence that the disease is tubercle in one case, which he considered to be a case of tubercle of the larynx and in which the bacillus tuberculosis was found, the patient recovered and is still living, five or six years later. There was never any evidence of a pulmonary lesion. In another case in a woman under the most favorable conditions for the development of tuberculosis, the bacilli were found in an abscess at the base of the tongue. The patient, however, recovered, and is still well. In the treatment of this condition, the part should not be excised, but some treatment which will destroy the part should be instituted.

DR. J. SOLIS COHEN said that within a few months he had had a case of what seemed to be tuberculosis of the lungs and larynx, but he had been unable to detect the bacilli. This case is notable for the entire absence of pain. On examining the urine, it was found that it contained sugar. Since then he had been in doubt whether or not this might not this might not be a case of diabetic phthisis, and this might account for the peculiar manifestations.

DR. J. O. ROE, of Rochester, had never seen a case of what seemed to be primary tuberculosis of the tongue, which he did not consider secondary. He reported two well-marked cases of primary tubercle of the pharynx. The first case was that of a lady thirty-five years of age. Six months before coming under observation, she suffered great pain in the throat. A well-marked lesion was found above the border of the epiglottis and at the base of the tongue. This improved under local treatment. Subsequently the ulceration returned, but the patient ran down in health and died. The larynx was entirely free from ulceration. The second case was a gentleman forty-five years of age, who had tuberculous ulceration of the pillars of the fauces. Later ulceration of the larynx developed. Under the persistent application of iodide of amyl continued for some time, the patient recovered and is still well, weighing 225 pounds.

FRIDAY, MAY 28.—MORNING SESSION.

At the executive session the following business was transacted:

OFFICERS ELECTED FOR 1887:

President.—Dr. E. Fletcher Ingals, of Chicago.

Vice-Presidents.—Dr. E. Carroll Morgan, of Washington, and Dr. J. N. Mackenzie, of Baltimore.

Secretary and Treasurer.—Dr. D. Bryson Delavan, of New York.

Additional Member of the Council.—Dr. F. H. Hooper, of Boston.

The following active members were elected: Dr. Benjamin F. Westbrook, of Brooklyn; Dr. Frank Donaldson, Jr., of Baltimore; Dr. Alexander Mac Coy, of Philadelphia; and Dr. J. C. Mulhall, of St. Louis.

Prof. Ranon de la Sota y Lastra, of Seville, Spain, was elected a Corresponding Fellow.

It was decided to hold the next meeting in New York, the time to be decided by the Council.

A proposition in reference to the formation of a

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS

was received and approved, and the following committee of conference was appointed: Drs. J. Solis Cohen, of Philadelphia; G. M. Lefferts, of New York; F. I. Knight, of Boston; F. H. Bosworth, of New York; and E. L. Shurly, of Detroit.

DR. E. L. SHURLY, of Detroit, related his observations on

THE USE OF SOME OF THE NEWER REMEDIES IN DISEASES OF THE UPPER AIR-PASSAGES.

He took up in detail some of the numerous new remedies proposed, and gave the results of his experience in their use.

DR. J. N. MACKENZIE, of Baltimore, said that although it had not been mentioned in the paper, he desired to state that he had found the internal use of dioxide of hydrogen of decided value in old cases of catarrh of the larynx or pharynx. He had used it in cases which have resisted almost all other forms of treatment. He employed a four per cent. solution, giving it in doses of from two to four drachms four to six times a day. This is kept up for two or three weeks. In a fair proportion of cases the discharge is arrested by this remedy alone.

DR. S. SOLIS COHEN, of Philadelphia, had used the dioxide in cases of phthisis and of laryngeal phthisis and had observed from it good effects upon the nutrition. One of the effects of the administration of this agent is a remarkable retardation of the pulse-rate. In one case this was so marked as to compel the discontinuance of the drug.

DR. WILLIAM H. DALY, of Pittsburg, then read a paper entitled

THE SIMPLEST AND MOST EFFICIENT TREATMENT OF DIPHTHERIA.

The speaker stated that he did not intend to offer a new treatment, nor one which would cure ninety or one hundred per cent. of the cases. He would not discuss the point whether diphtheria and croup are identical. His object was to describe the calomel treatment. This is an old treatment; it is mentioned in the writings of the Rev. Sydney Smith. About 1779 Sydney Smith's daughter, when six months old, was taken sick with a violent attack of croup. Dr. Hamilton, of Edinburgh, was sent for, but not being able to come, sent directions to "give the child two grains of calomel every hour and to persevere. He had never known this to fail." This was done and the child recovered.

The credit of practising and recommending this treatment in modern times belongs to Dr. William C. Ritter, of Pittsburg. Of the different forms of mercury, calomel is the best. The drug is to be given in doses of from two to five grains every one, two, or three hours. It may be given dry and washed down with a little ice water, or it may be given in water. This is to be continued until the stools become frequent and contain in them gelatinous masses of a bright green color, resembling chopped spinach. Then the interval is to be lengthened and the drug continued so as to keep up this condition of catharsis, the patient having two or three stools each day. It is better to lengthen the interval than to diminish the dose. In this way there is less liability to induce ptyalism. Very little depression follows these large and frequently repeated doses. Ptyalism does not often occur. Under this treatment the membrane exfoliates and reforms, if at all, with less readiness. The fever diminishes. The diet is to be of a light, nutritious character.

It was the most efficient and the simplest of any treatment which he had employed. The cardinal rule is to give the calomel until the condition of catharsis described has been produced. Under this method a greater number of cases will be saved than under any other proposed method.

DR. E. L. SHURLY remarked that he had a large experience with diphtheria and with the calomel treatment; and while he agreed that the internal administration of calomel is one of the most efficient remedies for croupous inflammation, he could not agree in regard to its efficiency in the treatment of diphtheria. The difference between croupous inflammation and diphtheria is considerable. Diphtheria is an infectious disease, while croupous inflammation is not necessarily an infectious process. He knew of no cases of diphtheria relieved by the calomel treatment.

DR. FRANK DONALDSON wished that Dr. Daly had given some statistics and reported some cases. He had seen the calomel treatment frequently tried, but without success. Trousseau treated cases of diphtheria in that way, but he finally abandoned it. If any mercurial was used, he thought that the bichloride would be the one to be employed. Under our present view of the nature of the disease, the best method of treatment would probably be the use of a spray of a solution of the bichloride of mercury (1 : 1000), sustaining measures, and keeping the patient in a room where there was free ventilation.

DR. BEVERLY ROBINSON, of New York, referred to the fact that there is scarcely a drug which has not at some time been recommended as a specific for diphtheria. Calomel has been thoroughly used, and finally given up because it did not accomplish what was proposed. He was convinced that epidemics of diphtheria as of other infectious diseases differ very much in virulency, and a remedy which is successful in one epidemic will entirely fail in another. Another point not sufficiently dwelt upon, as a rule, is that the characters of diseases differ much in different countries. He had never seen in New York such types of typhoid fever as he had seen abroad, notably in Paris. He had never seen such cases of malignant diphtheria in the hospitals of New York as in the children's hospitals of Paris.

He thought it safer to follow what has been considered by the accurate men of our profession, in large numbers, the most reliable treatment for a disease of this character. There is a general consensus of opinion

that the proper line of treatment is disinfection of the throat and air-passages, with the use of smaller or larger doses of tincture of iron, combined or not with chlorate of potassium.

DR. F. H. BOSWORTH, of New York, thought that mercury possesses a specific value in the treatment of diphtheria. Diphtheria is a blood poison, which often kills by its toxic effect, but in a large majority of cases it kills by leading to the development of croup. The affection of the larynx is not diphtheria, but a sequent disease. While mercury has no effect upon diphtheria, he believes that it has a specific effect in arresting the disease in the larynx, called croup. Mercury is the remedy to be administered in croup.

DR. J. N. MACKENZIE called attention to the fact that where, in diphtheria, we have great depression, alcohol should be our sheet-anchor.

DR. WILLIAM H. DALY, in closing the discussion, said that he was not surprised that this method of treatment had not been received with favor. He had not received it favorably when it was presented to him. He did not recommend calomel as a specific, but simply said that a greater proportion of successes had followed this plan of treatment than any other which he had tried.

DR. E. CARROLL MORGAN, of Washington, then read a paper on

THE QUESTION OF HEMORRHAGE AFTER UVULOTOMY, WITH THE DESCRIPTION OF AN INSTRUMENT FOR ITS ARREST.

The speaker first quoted from numerous authors, giving their views as to the danger of hemorrhage after this operation. He then described the following case: A man, aged twenty-eight years, whose uvula had been excised five days previously by another operator, came to him with the statement that the bleeding came on four hours after the operation, and had continued at intervals since then, a large quantity of blood having been lost. Various means had been tried to stop the bleeding, without success. The parts were covered with a coagulum induced by the application of the persulphate of iron. This was removed and the parts cleansed. The bleeding points were then seen. The uvula evidently had been greatly hypertrophied. The scissors had been used in the operation. There was no evidence of the hemorrhagic diathesis in this patient or in any member of the family. The parts being cleaned, the stump was seized with dressing forceps and the hemorrhage was controlled. The galvanocautery was applied and the bleeding stopped. In nine hours it recurred. The cautery was again used and the stump dusted with the persulphate of iron. The following morning a copious hemorrhage took place, not less than a drachm a minute, by actual measurement, being lost. A careful examination was then made to detect any other source of hemorrhage, but none could be found. Chromic acid was then used and the hemorrhage stopped. At three o'clock, the same day, copious bleeding recommenced. The galvanocautery was again employed. There was not room for the application of a ligature. Torsion was tried without success. A small clamp used in retaining shirt sleeves in position, the spring having been weakened and the teeth filed down, was then applied. A string was attached to this and brought out of the mouth. This checked the bleeding, and was allowed to remain for several hours. It was then removed and the bleeding did not recur. A search of the literature of the subject failed to show any instance in which such a procedure had been before adopted. In this case he thought that this device had saved the patient's life.

A careful study of the subject had enabled him to find seventeen other cases in which the hemorrhage after this operation had been profuse. Death has never resulted directly from the hemorrhage after uvulotomy.

A persistent, alarming hemorrhage is only encountered in the rarest instances. A moderate bleeding, stopping spontaneously or by the use of the mildest applications, occasionally happens. A loss of a few drops of blood at the time of operation, followed by a slight oozing, is a common occurrence. The most reliable surgical measures for controlling uvular hemorrhage, are ligature, compression by a clamp or forceps, and the use of the actual cautery. The most reliable styptics are in the order named: solid nitrate of silver, persulphate of iron, gallic acid, tannic acid, alum, the local use of ice, and vinegar. The most reliable systemic remedies are opium, acetate of lead, sulphuric acid, and ergot. In operating, the object should be to restore the uvula as nearly as possible to its normal size, and that the entire uvula should not be removed.

DR. F. H. HOOPER had never seen a bleeding of more than a few drops after this operation. He never cut through the muscle, and thinks that the removal of a small portion probably does as much good as the removal of a larger portion.

DR. FRANK DONALDSON held that the uvula very rarely requires to be amputated. The old idea that enlargement of the uvula produces irritative cough, is erroneous. The principal trouble produced by an enlarged uvula is interference with the proper adaptation of the soft palate during the second stage of deglutition.

DR. WILLIAM H. DALY, of Pittsburg, said that this operation, if done at all, should be so performed as to leave the parts in as nearly a normal position as possible. Uvulotomy is, however, rarely necessary.

AFTERNOON SESSION.

DR. THOMAS R. FRENCH, of Brooklyn, presented a paper on

THE LARYNGEAL IMAGE AS SEEN IN PHOTOGRAPHS TAKEN DURING THE PRODUCTION OF TONES IN THE SINGING VOICE.

The speaker had made numerous investigations on this subject, and his observations failed to confirm the statements of most authorities in regard to the position of the vocal cords during the production of different notes of the singing voice. Different indiv duals evidently use different mechanisms in the production of different tones. The general result of his investigations seemed to indicate that in the production of low notes, the vocal cords are separated to a greater extent posteriorly than anteriorly; in the production of the middle tones, the vocal cords are parallel; and in the production of high notes, the opening is widest in front.

The paper was illustrated by numerous photographs thrown upon the screen.

The following papers were then read by title:

Clinical Notes on Prolapse of the Laryngeal Ventricles, by DR. GEORGE W. MAJOR, of Montreal.

Three Cases of Thyrotomy: Recovery in Each Case with Good Voice, by DR. CLINTON WAGNER, of New York.

Alarming Hemorrhage after Tonsillar Excision, Arrested by Torsion of the Artery, by the same author.

DR. WILLIAM C. JARVIS, of New York, read a description of

A NOVEL PROCEDURE FOR THE REMOVAL OF SUBGLOTTIC LARYNGEAL GROWTHS.

J. C., aged thirty-five years, consulted him on March 22, 1882, for the relief of a difficulty of speech and of breathing. The trouble with the voice was noticed two years before, the difficulty in speech appeared one year before coming under observation. The laryngoscope showed a mass of papillomatous tissue occupying the cavity of the larynx. The vocal cords and ventricular bands were not involved. An attempt was made to seize the growth during phonation, with the Mackenzie forceps, but only a few pieces were removed. The écraseur was then tried, but it was found impossible to use this instrument on account of the wire being seized by the spasmodic contraction of the vocal bands and displaced. Chromic acid applications were then tried, but although the growth was touched, it was found impossible to limit the application to the diseased structures. The patient then disappeared, and did not return for a year. His condition was then much worse, and the difficulty of breathing greatly increased.

Dr. Jarvis then determined to try the following plan, and if this failed, to remove the growth through an opening in the windpipe. A forceps, similar to the Mackenzie instrument, but heavier, was secured. Through the tips of the blades holes were drilled, and through these was passed a piece of No. 00 piano wire, which was conducted through a second opening at the angle of the blades, and out to the handles, where it terminated in a loop, into which the extremity of the index-finger could be placed. When the blades were separated, this wire formed a cross-bar uniting their extremities. When the blades were closed, the loop of wire could be drawn up by the finger. The operation was performed without an anæsthetic. The tongue was depressed, and with the aid of the mirror the forceps was introduced into the cavity of the larynx. The mirror was then removed and the forceps carried down to the glottis, through which the tip of the instrument was forced with considerable trouble, on account of the spasm. The instrument was carried into the trachea sufficiently far to be sure that it was below the attachment of the growth. The blades were then separated, and pressing against the anterior wall of the larynx, the instrument was gradually raised until the wire was caught. The blades were then closed and clamped, the loop of wire drawn in, and the forceps removed, bringing with it a growth. The laryngoscope showed a second growth, which was removed in the same way. Breathing was at once rendered easy, and the speech became natural. The patient said that the presence of the forceps, although uncomfortable, caused no pain. This is the only case on record of the removal of a subglottic tumor without anæsthesia, and without an opening into the larynx.

DR. T. AMORY DE BLOIS, of Boston, presented an account of

CASES OF LARYNGEAL ŒDEMA.

The author had been led to write the paper by reading of several fatal cases of this affection reported during the past few months. He gave brief details of fourteen cases of laryngeal œdema coming under his observation. All of these cases recovered, six under the use of astringents and eight after scarification.

DR. FRANK DONALDSON suggested that in these cases intubation of the larynx after the O'Dwyer method might be applicable.

DR. E. CARROL MORGAN, of Washington, stated that his experience with this condition had been limited. He had usually employed active purgation with vesication over the larynx and various local measures.

DR. W. C. JARVIS, of New York, referred to the constitutional treatment of œdema of larynx. Some time ago in a case of marked œdema, he used the fluid extract of jaborandi. In forty-eight hours the œdema was greatly diminished. Since then there have been several cases reported in which pilocarpin was used with advantage. He had never seen good results from scarification. In a case of attempted suicide followed by œdema of the larynx, a tube was introduced, and in this case although plenty of time could be taken, no benefit followed scarification. It seemed as though the fluid was contained in numerous small sacs. The opening of a few of these did no good.

A paper by DR. CHARLES H. KNIGHT, of New York, describing *A Case of Perichondritis of the Larynx*, was read by title.

DR. EDGAR HOLDEN, of Newark, described

A CASE OF GUMMATOUS DISEASE OF THE LARYNX, WITH SPONTANEOUS REOPENING OF THE LARYNX AFTER THYROID LARYNGOTOMY.

L. D., aged thirty-five, presented himself, May 20, 1885, with dyspnœa and aphonia. Examination showed a cicatrix on the epiglottis, and the left side of the larynx presented a rounded mass of dull appearance. He denied syphilitic infection. After a careful consideration of the case, the probabilities were thought to favor syphilis, and he was given iodide of potassium in large doses. There was improvement for a short time, but he soon became intolerant to the drug. Thyroid laryngotomy was considered necessary and was performed. The tumor was removed with the écraseur; no ulceration was visible. Tracheotomy was then performed and the upper incision closed with sutures. The patient did well and the tube was removed on the tenth day. The external wound healed. He insisted on returning to his home, where the surroundings were very unfavorable, and his health deteriorated. On the fortieth day after the healing of the wound, the laryngeal incision was torn open by a severe cough. He refused to return to the hospital. Examination of the larynx showed no disease. Owing to the surroundings it was impossible to get the wound to heal. His health continued to run down, and six months and fourteen days after the operation, the patient died of exhaustion, having lived five months with an opening in the larynx.

DR. U. G. HITCHCOCK, of New York, read a paper on

GUMMATOUS INFILTRATION OF THE BASE OF THE TONGUE,

giving the details of four cases coming under his observation. In none of these cases was the fibrous septum

the exclusive seat of the disease, and in three cases the deposit did not approach this structure. In these cases the degree of dysphagia was in direct proportion to the proximity of the deposit to the base of the tongue.

(To be concluded.)

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, May 6, 1886.

THE PRESIDENT, B. F. BAER, M.D., IN THE CHAIR.

SÄNGER'S CÆSAREAN OPERATION.

DR. ROBERT P. HARRIS desired to give publicity to the following statement, received a few days ago in a letter from Dr. Sänger, of Leipzig, by which it will be seen that his method now stands unrivalled in the world in its ability to save human life. Locally considered, the Porro operation as performed in the Santa Caterina Hospital of Milan, Italy, has, until recently, far exceeded in its proportionate success all other Cæsarean methods, in any hospital or country, but this, the best of all Porro successes, has now to be rated second, as compared with its younger German rival. Laparoelytrotomy, a year ago, stood upon the same level with the Sänger operation in its rate of success; but now the latter far outstrips it in the number of times it has been performed, and in its proportion of cures. According to Dr. Sänger's letter, his operation, with its modifications and simplifications, has been performed 25 times, saving 18 women, or 72 per cent., and resulting in 22 children being delivered alive, or 88 per cent. In these are included three fatal American cases, which if not in an absolutely hopeless state before the operation, gave a very minimum hope of success. The 22 European operations saved 18 women, or $81\frac{9}{11}$ per cent. In the Maternity Hospital of Leipzig, Dr. Sänger has operated four times, Dr. Obermann once, and Dr. Donal once, saving all of the women and children; in but one woman was there any special trouble after the operation. Dr. Leopold, of the Dresden Maternity Hospital, has operated nine times, and Dr. Korn once; the former lost one women: all of the children were saved. Thus we have 15 women and 16 children saved under 16 operations, a mortality for the former of only $6\frac{1}{4}$ per cent. Of the four deaths in Europe, two resulted from septic poisoning which existed at the time of the operation and in the other two subjects it followed it.

Dr. Sänger has such confidence in his method from the success that has attended it in Germany that he believes the time has come when it should be preferred to craniotomy, because of its moderate fatality, and its saving the child. We should be glad if all of the Cæsarean operations of the United States should be performed after Sänger's method as simplified by Garrigues and Leopold; but we must not accept very happy results here until our accoucheurs become alive to the fact, that delay in operating will make any method fatal in a large proportion of cases. In no country are the capabilities of the old Cæsarean operation greater than in the United States, and in few has this form of delivery been of late more uniformly fatal. To find 18 recoveries under it we must search backward to January, 1863, and through a record of time covering more than twenty-three years; in which period 73 operations have been performed, proving fatal in about 75 per cent. This occurred notwithstanding an established fact that a set of early operations will save 75 per cent. of the women and still higher of the children in the United States.

TAIT ON FARADIZATION.

DR. R. P. HARRIS also presented the following letter from Mr. Lawson Tait, dated April 16, 1886:

"I have very strong objections to the proposal to treat cases of extrauterine pregnancy by faradization. In the first place, the diagnosis of these cases must always be haphazard—that is to say, a correct diagnosis will not be made probably more than once in three times; the result will be that all such cases will be dealt with mischief only, and I venture to predict that this treatment will be dropped as all such treatments are, without explanation of the case in a very short time.

"My greatest objection is, that supposing the fœtus has passed through the stage of fœtal rupture and remained alive, what right have you to murder that child? If it goes on to the full time it may be delivered alive, and the woman will have a chance of recovery from the operation, far greater than with the faradization treatment of destroying the child. The cases, according to experience, which recover from the operation, are about six out of seven.

"Every one, who has had much experience with pelvic tumors, must have seen a certain number of cases where the fœtus has died between the fourth and sixth month, and where after a prolonged course of suppuration it comes out through the rectum, bladder, etc.; these are, of course, the cases where the tubal rupture has taken place into the broad ligament on the left side. I have seen one right-sided case going into the bladder; it, of course, killed the patient.

"In the whole course of my life I have only known of one case where the woman has carried an extrauterine pregnancy for a number of years after the death of the fœtus. We know with perfect certainty all about this case, and for about eighteen years she has carried on the left side a condensed ovum of extrauterine pregnancy. I doubt very much if there could be found in the whole world three other such cases; whereas, the number of cases who die or who have prolonged illnesses, after the suppuration and discharge of the fœtus, is even in my own experience very great."

In closing his letter Mr. Tait writes:

"I wish you would make this opinion of mine known on your side."

In reply, I will state: 1. We do not, in this country, practise electrolysis in cases of extrauterine pregnancy. No puncturing needles are used, and the electro-magnetic current will not endanger the life of the patient any more, if the growth to be acted upon is a tumor, than if it be, as presumed, an ectopic fœtal cyst. The experience of seventeen years in the United States, in which no fatal result is believed to have taken place, has only tended to establish this fœticidal method as a valuable method of saving women when in great danger of death from rupture of the fœtal cyst and internal hemorrhage.

2. We do not propose to act upon the fœtus after it has escaped into the abdominal cavity, unless the fœtus should be very small, and be easily accessible to the pole of the battery placed in the vagina. We cannot

see that it is any more a murder to destroy a two or three months fœtus after it has escaped from a Fallopian tube by rupture than while it is still in it. The chief objection lies in the fact that such an ectopic fœtus will be much more likely to give trouble after its destruction than one that is securely enclosed in a sac from which the amniotic fluid shall have been absorbed. It is true that an abdominal fœtus may be delivered alive at term, if permitted to live; but it is not correct to estimate the risk of such an operation as lower than faradization properly performed, for it is far higher. Primary laparotomy, so far as we know of the operations, has been fatal in fifteen out of nineteen cases.

It is not proposed in this country to operate by faradization upon fœtuses of from four to six months. Dr. T. G. Thomas has, it is true, proposed to make the limit four and a half months, but the general impression is, that fœticide is much safer immediately, and remotely, if done in the second and third months, when fœtal ossification is very incomplete. The entrance of fœtal débris into the bladder is not necessarily fatal, as in the case related by Mr. Tait, for Parry refers to nine cases, four of which recovered.

Mr. Tait appears not to be aware of the fact that cases of prolonged ectopic gestation have been comparatively numerous, as witness the following partial record:

1. Nebel reports the case of a woman of ninety-one, who died in 1767, and in whose body a fœtus was found, that she had carried fifty-five years. (Campbell on *Extrauterine Pregnancy*, 1840, page 45.)

2. Brandt records one of a woman of eighty, who died in 1858, after carrying a fœtus for fifty-six years, and bore two children while it was still in her abdomen. (Ranking's *Abstract*, 1863, vol. i. page 216.)

3. Parkhurst reports one of a woman of seventy-seven, who carried a fœtus fifty-two years. (*British and Foreign Med. Chir. Rev.*, 1856, vol. i. page 271.)

4. Chiari gives a case of a patient who died of pneumonia when eighty-two, who carried an eight months fœtus for fifty years. (*Lancet*, London, 1876, vol. ii. page 141.)

5. Conant's case was a woman of sixty-three, who died in June, 1863, after carrying a fœtus thirty-five years. (*New York Med. Journ.*, May, 1865.)

6. Major found in a woman of seventy-eight a calcareous fœtus computed at three months. (Cruveilhier, *Essai sur l'Anatomie Pathologique*, Paris, 1816, tome ii. page 130.)

7. Mangin Dernier found two fœtuses in the body of a woman of seventy-four, which she had carried thirty-three years. (*Journ. de Méd.*, 1786; *Gaz. Méd.*, July 29, 1837.)

8. Morand, also, found a three months' fœtus in a woman of seventy-eight; she had carried it for thirty years. (*Mém. de l'Acad. Roy. des Sciences*, 1748.)

9. Kristian Grön found a three months' fœtus in a woman of forty-nine, which had been carried eighteen years. (*Norsk Magazin for Lægevidensk*, Band xvii. Heft 2.)

10. Johannis Ambosi (1582) reports a case of a woman of Lens, who carried a fœtus twenty-eight years. (See Astrus, *Traité des Mal. des Femmes*, Paris, 1765, tome iv. p. 78.)

11. Campbell reports the case of a woman of seventy-five, in whom was found a fœtus that had been carried thirty years; a fœtus of about two months was also found. (Campbell on *Extrauterine Gestation*. Edin., 1840, p. 55.)

12. Pepper relates the case of a patient of fifty-three, married twenty-seven years, in whose body Dr. Loder found two fœtuses, one carried twenty-three years. (*Trans. Pathol. Soc. Phila.*, 1876, p. 102.)

13. Francis Bayle removed an eight pound fœtus after the death of a woman of Toulouse, that she had carried twenty-six years. (*Philos. Trans.*, abridged, London, 1794, vol. iii. p. 222.)

14 Cruveilhier, in his *Anatomie Pathologique*, gives a plate representation of a fœtus which had been carried many years.

15. Olinger reports the case of a woman who carried a six and a half months' fœtus about fifteen years. (*Prog. Méd.*, Paris, 1884, vol. xii. p. 196.)

16. Johnson's case, aged sixty-eight, carried a fœtus fourteen years, after which she discharged fœtal remains at intervals during thirty years. (*Med. Times*, London, 1872, vol. i. p. 655.)

17. Leinzell, in 1720, removed from the body of a woman of ninety-four a fœtus that she had carried for forty-six years.

18. Watkins examined a woman of seventy-four, who died of kidney disease January 13, 1866, and removed a fœtus which she had carried for forty-three years. (*Brit. Med. Journ.*, March 3, 1866.)

19. Van Sweiten, also, records the case of a woman of Lyons, who died at sixty-eight, and had carried a fœtus for twenty-seven years. (*Opus cit.*)

20. Fabri, of Ravenna, found in a woman of fifty-five a fœtus she had carried for some years. The pregnancy was her fifth, and she bore two children at later periods. (*Brit. Med. Journ.*, March 7, 1863.)

Many more cases of the same character might be added to this list, some of which would go to show that an extrauterine fœtus may prove fatal by purulent disintegration and pointing after twenty years or more. Even an ectopic fœtus of three months may cause perforation of the rectum, and possibly a fatal issue, although this is a rare result. It will be noticed that in three of the twenty cases the fœtus was computed at three months, and in another a second fœtus was of two months.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, May 17, 1886.

THE PRESIDENT, CHARLES A. LEALE, M.D., IN THE CHAIR.

DR. LEWIS HALL SAYRE read a paper entitled

A CONTRIBUTION TO THE ETIOLOGY OF POTT'S DISEASE.

The symptoms accompanying spondylitis in its earliest stages, he said, are vague, and not of a character to call attention directly to the spine; and, unless the examinations of the patient are conducted with great care and minuteness, the disease is often not detected before the lapse of many months, and not until irremediable deformity has occurred. Dr Sayre said that he sided with those who look upon traumatism as the exciting and necessary cause, which, in a constitution already vitiated, must be much less severe to produce spinal or other lesions than in a person of vigorous and robust health.

The disease in its inception attacks the bony part of the spine in its anterior portion, and is at first an inflammatory process. This is followed by absorption or necrosis, and the formation of pus and abscesses in many cases, and finally ankylosis of two or more vertebræ results, after a period of treatment of longer or shorter duration. An early diagnosis is of the greatest possible importance. In many of the text-books it is stated that pressure upon the spinous processes causes pain in spondylitis, but this is very often not the case, as this pressure separates the bodies of the vertebræ, and, by removing the inflamed surfaces from contact with each other, gives relief, instead of pain.

There is another point of great importance in the examination, and it is one which, with two exceptions, is not mentioned in any of the standard works on this subject. There are certain cases in which the disease commences on the *sides* of the bodies of the vertebræ, at the point of their articulation with the ribs, and not in the anterior part of the bodies, as is commonly the case. They are usually caused by some violence applied to the rib, which originates an inflammation at its articulating facet on the spinal column.

These cases are more than ordinarily obscure in the commencement, and are difficult of diagnosis, as pressure on the head seldom causes pain, and the child can run, and sometimes jump, without pain, and can often bend the body without inconvenience, while it may have very little muscular rigidity.

In order to detect this condition, it is necessary to place the child across the lap, making strong pressure upon each rib, so as to bring it into firm contact with its articulating vertebra; and when the rib is reached which articulates with the inflamed or diseased vertebra, either pain will be produced, or a muscular spasm, very similar to that caused by "point" pressure on a "contractured" tissue, will take place. These manifestations of trouble may also be produced by pressure made on either side of the spine over these articulations. In conclusion, Dr. Sayre related a case of great interest illustrating this form of spondylitis.

Dr. Lewis A. Sayre remarked that the case described by his son was one of the most interesting that he had ever seen. It had been pronounced by a well-known neurologist to be one of organic disease of the cord, and there was absolutely no deformity that could be detected by the most careful examination. He himself thought there was no spondylitis until he made a lateral examination, and found that pressure over the vertebral articulation with the eleventh rib caused acute pain. When this point of tenderness was discovered, it became evident that there was disease at the side of the vertebra, and a plaster-of-Paris jacket was accordingly applied. Owing to the fact that the patient indulged in violent exercise before the latter was perfectly "set," it soon broke down, and was removed at the end of two weeks, when a distinct knuckle was formed. This proved that the diagnosis was correct; but if the first jacket had been perfect, it was doubtful whether any deformity whatever would have occurred, and the diagnosis of Pott's disease would have been open to question. The deformity, however, was now so slight that it would be likely to escape observation entirely under ordinary circumstances. This subject he considered one of vast importance.

Dr. J. W. S. Gouley exhibited a peach-pit which he said was of interest as constituting a

CONTRIBUTION TO THE SUBJECT OF FOREIGN BODIES IN THE ALIMENTARY CANAL.

A gentleman, seventy-one years of age, had removed it from his rectum three months after it had been swallowed. It was an inch and a quarter in length, seven-eighths of an inch in breadth, and eleven-sixteenths of an inch in thickness. When it was extracted from the rectum, the patient remembered that three months before he had eaten some pickled peaches, since which time he had eaten no peaches at all. The case was interesting from the fact that the peach-pit caused no pain or distress whatever in passing through the intestinal canal.

Dr. Gouley then went on to say that much larger foreign bodies than this peach-pit had been known to pass through the pyloric orifice without pain. In Eve's *Surgical Cases*, page 258, an account is given of a large egg-cup which passed successfully through it and the ileocæcal valve, but which finally lodged in the ileum, about ten inches beyond the latter point. The patient died three months afterward, death being due, in part, to a strangulated hernia. Another remarkable case recorded in Dr. Eve's work is one reported by Otto, of Copenhagen, in which the patient swallowed a silver spoon, which was discharged twelve months afterward through an ulceration in the prærcardial region, recovery following.

Dr. Gouley then related a case of his own, which occurred twenty-five years ago at Bellevue Hospital. In a patient suffering from delirium tremens, who died shortly after admission, there were certain heart symptoms which could not be satisfactorily explained, though there were some signs of pericarditis. At the autopsy the pericardium was found filled with flaky lymph, and when the heart was lifted up a metallic substance was felt. On opening the œsophagus, this was found to be a plate, with two teeth attached.

A case reflecting the highest honor on the surgeon who had charge of it was one operated on by Dr. Samuel White, of Hudson, New York, in 1807. A patient swallowed a teaspoon, and it was successfully extracted one month afterward by Dr. White, who performed laparotomy, made an incision in the ileum, and, after removing the spoon, sewed up the intestine and the external abdominal wound. A good recovery was made. In conclusion, Dr. Gouley related some curious cases reported by Velpeau and others, in two of which iron forks were swallowed.

Dr. John H. Hinton mentioned that a negro man in his employ once swallowed a peach-pit. He took a dose of castor-oil, and the next day passed the pit by the anus without any difficulty. The case was remarkable on account of the extremely rapid progress of the foreign body through the alimentary canal.

Dr. Lewis A. Sayre related two cases of his own in which two elderly gentlemen swallowed sharp pieces of oyster-shell about the size of a shilling, the foreign bodies giving no trouble until they got into the rectum, when they produced a considerable amount of irritation. Dr. Sayre also mentioned some cases illustrating the use of the bristle or umbrella probang in the extraction of foreign bodies from the œsophagus. For a long

time he supposed that this device was original with him, but he afterward learned that it had been previously employed by an officer in the British East India service, who had not, however, made it public. The first case in which he used a bristle probang was that of a young man who had swallowed a tooth attached to two hooks, which caught in either side of the œsophagus.

DR. P. BRYNBERG PORTER mentioned a case recently reported by Dr. C. B. Hutchings, of California, in which an open penknife passed successfully through the alimentary canal. The patient, a young man of twenty, accidentally swallowed the knife, handle first. He was ordered a dose of oil by the physician who first saw him, but this was fortunately not taken. Dr. Hutchings instructed him to eat freely, particularly of mush and buckwheat cakes, and to lie constantly on the right side, with the hips elevated, so as to facilitate the passage of the knife into the duodenum. The patient claimed that he felt the knife at various points along the intestinal track, and that it caused considerable pain when passing through the ileocæcal valve. It was finally discharged, during a very large movement of the bowels, on the morning of the sixth day, with the point first. Dr. Hutchings believes that in all cases where a rough or sharp instrument has been swallowed a bulky, non-concentrated food should be given for the purpose of filling and distending the bowels, thus preventing the object from catching in any of the numerous folds of the intestines. In this instance the knife, with the blade, measured three and a half inches; while the point was sharp, and the rivets in the handle projected a sixteenth of an inch, owing to the worn condition of the latter.

Dr. Porter also referred to a similar and later case, in which the same plan of treatment had resulted in the successful passage of an open toy-knife, considerably smaller than the one just mentioned; and, in addition, to a case reported by Dr. Gerster, of New York, in which a metallic button, three-quarters of a inch in diameter, was swallowed by an infant six months of age without the mother's knowledge. On account of increasing dyspnœa and failing health, tracheotomy was performed six months later, under the supposition that the trouble was due to a laryngeal tumor. As at this time the button was firmly embedded in the tissues between the œsophagus and trachea, it was not discovered at the examination made immediately after the throat was opened, and three days afterward the infant died of pneumonia.

THE PRESIDENT thought it a point of importance to determine, as far as possible, how large a foreign body could pass the ileocæcal valve. Some years ago he was called to see a child nine months of age who had swallowed a two-cent piece, which, as it first lodged in the œsophagus, the mother had pushed with her finger down into the stomach. While keeping the infant under observation he made an investigation on the cadaver, and found that by keeping the coin flat a two-cent piece could be made to pass the ileocæcal valve of a child of nine months. About two weeks after swallowing the foreign body the infant had a convulsion; after which it had no further trouble until some time later, when it was noticed that it seemed to suffer considerable pain whenever it had a passage. This was due to the irritation caused by the coin in the rectum, and shortly afterward it was successfully passed. When a patient swallows a foreign substance which is so large that it is impossible for it to pass the ileocæcal valve, the question arises whether we shall allow it to ulcerate out or perform laparotomy. The successful case of Dr. Samuel White, related by Dr. Gouley, would seem to indicate that the latter is the preferable course.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, March 22, 1886.

THE PRESIDENT, S. WEIR MITCHELL, M.D., IN THE CHAIR.

DR. H. C. WOOD read a paper on

LANDRY'S PARALYSIS.

In the course of the paper the symptomatology and diagnosis of neuritis and poliomyelitis were to some extent considered.

DR. G. BETTON MASSEY said that, in regard to pain on pressure in poliomyelitis, it is of interest to recall the fact that in this affection the skin is unusually sensitive. In children, for a year after the attack, there is hyperæsthesia to tactile impressions and especially to the battery. Hyperalgesia would probably better describe the condition. These cases have presented marked reactions of degeneration, and it has seemed to him that the greater the reactions of degeneration the greater the sensitiveness to the galvanic current in children. An autopsy is by no means necessary to make out the diagnosis, for the clinical histories of these cases are almost identical. It should be as easy to diagnose acute poliomyelitis in a child as to diagnose smallpox. He thought it might be possible, in the cases referred to, to remove a portion of the nerve for examination during life.

DR. WHARTON SINKLER, in reply to Dr. Wood's statement that the diagnosis cannot be regarded as proved unless there has been an autopsy, said that we cannot make autopsies in all cases, and we must therefore infer that our diagnosis is correct when the symptoms are identical with those of other cases in which autopsies have been made. Competent observers in this country and abroad have made post-mortem examinations in cases of infantile paralysis, and have found distinct lesions in the anterior horns of the cord. Hence we may assume that there is such a disease as poliomyelitis anterior. He had seen children, as described by Dr. Massey, in whom there was hyperæsthesia to electricity, especially to the galvanic current.

At least twelve or fifteen years ago Barnwell advanced the view that infantile paralysis was a disease of the peripheral nerves; the later observers, supported by autopsies, seemed to have disproved his theory. Kennedy has described a variety of infantile paralysis under the name of temporary paralysis. We believe that this disease is distinct from "myelitis of the anterior horns," and it may be the result of a diffused neuritis, as suggested by Dr. Wood. He had no doubt that some of the cases of the so-called spinal paralysis of adults, those of short duration, are of a similar nature.

DR. FRANCIS DERCUM had lately seen a case in private practice which was of interest in this connection. A man who had been exposed to damp and cold had a chill followed by fever. He was called to see him, and found him sufferring with intense pain affecting both brachial plexuses, followed by rapidly developing pare-

sis of both arms. This was evidently a case of peripheral neuritis. The electrical reactions were examined by Dr. Lloyd, who can better give the results of this examination.

In such a case, if the patient does not die early, we may expect the cord to become involved, and then, in the absence of a knowledge of the previous history, it would be impossible for any one to say which was the primary lesion.

He thought it possible that we may have a disease in which both the centres and the nerve trunks are affected simultaneously. Diphtheritic paralysis is probably a case in point.

Dr. James Hendrie Lloyd thought that the case referred to by Dr. Dercum was of interest, especially with reference to one or two points which had been brought forward in regard to the reactions of degenerations. This man was completely paralyzed in both deltoid muscles, and in the right infraspinatus and the right teres major and minor muscles. The left infraspinatus and teres muscles were perfectly normal. If this was a case of peripheral neuritis, we have facts contradicting some observations made to-night. In this case, typical reactions of degeneration were present. The changes were both serial and modal, and the faradic irritability was almost extinct. There were no fibrillary contractions in this case. In regard to this subject of reactions in wasting muscles, it seems to him that where there have been marked fibrillary contractions, the reactions of degeneration are not as distinct as we should expect to find them, and this is probably due to the fact that such cases are caused by a slowly advancing anterior poliomyelitis, in which the trophic centres are very gradually destroyed; whereas, in peripheral neuritis the lesion would be more quickly established, and the characteristic electrical changes would be earlier observed.

Dr. Charles K. Mills thought that while multiple neuritis may occur more frequently than we have been led to think, still, we have as yet few positive diagnostic points. Pain on pressure over a nerve trunk is perhaps one of the best signs of neuritis of all forms, but this is also sometimes found in subacute myelitis of the anterior cells, and in neuralgias there is hyperæsthesia at limited points. In genuine posterior sclerosis at times limited areas of pain on pressure are present. In regard to Landry's paralysis, it seems that subacute myelitis of the anterior horns would simulate it more closely than anything else.

Some years ago, Leyden advanced the view that locomotor ataxia was due to neuritis, and since then this view has been advocated by different authorities. We find tenderness over the nerves in various spinal and cerebral affections. In some cases of brain tumor, hyperæsthesia is a marked feature. The same is sometimes seen in spinal tumors. It might be said that in these cases there was also neuritis, but in some cases of brain tumor this is impossible. The tumor may be so high as to be remote from the nuclei of origin of the nerves. Leaving post-mortems aside, the uniform bilateral character of many of the cases classed as subacute anterior poliomyelitis is, so far as it goes, in favor of a central origin of the disease.

The suggestion of Dr. Dercum that the disease may simultaneously affect the nerve trunks, and the centres seems more philosophical than to attribute all these cases to multiple neuritis. In arsenical paralysis, he believed that the nervous protoplasm was everywhere affected.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, June 8, 1886.

The President, A. Jacobi, M.D., in the Chair.

Dr. Charles Carroll Lee read a paper on

THE FUTURE INFLUENCE OF SURGERY AND SURGICAL RESOURCES UPON OBSTETRICS.

He gave a review of what had been accomplished in obstetrics from a surgical aspect, and spoke first of Cæsarean section. He spoke of the four modifications of it suggested respectively by Franck, of Cologne, Kehrer, of Heidelberg, Sänger, of Leipsic, and Cohnstein, of Heidelberg. Kehrer's plan is described as consisting of a transverse incision through the anterior convex surface of the uterus at the level of the os internum, of deep sutures for the muscular walls, and superficial sutures to secure immediate contact of the peritoneal borders, and of strict antiseptic precautions during the operation, combined with subsequent drainage of the abdominal cavity. In order to cover the line of incision with peritoneum, he directs that the latter be separated from the underlying muscle for nearly a half inch from the borders of the wound.

Sänger suggested that, after the removal of the child through the ordinary incision, and a temporary elastic ligature had been placed around the cervix, a narrow strip of muscular tissue should be removed by a section running at first parallel to the borders of the wound by diverging outward as the section approached the peritoneal surface. The peritoneum is next to be detached and allowed to cover the expanded portion of the Y-shaped section. He then advised the introduction of deep uterine sutures running obliquely through the uterine tissues to the inner border of the wound, avoiding, however, the decidua, with a second set of superficial sutures designed to secure the contact of the peritoneal borders. This principle of "subperitoneal muscular resection," as it is called, has been practised by Leopold, who found it necessary, however, to make certain modifications in its application.

The method proposed by Cohnstein is to turn the uterus completely out of the abdomen, and open it from behind. This, so far as Dr. Lee is aware, has never been attempted in actual practice.

Having quoted from Dr. Robert Harris, of Philadelphia, the highest American authority on Cæsarean section, to show that the greatest danger about this procedure arose from the delay commonly made in resorting to it, Dr. Lee spoke of the substitutes which had been devised to take the place of Cæsarean section. The first of these was Porro's operation, ovarohysterectomy, involving the removal, after the performance of the Cæsarean section, of both uterus and ovaries. This was afterward modified by Müller, who recommended that the uterus, after the enlarging of the abdominal wound, should be tilted laterally, and withdrawn outside the abdomen previous to section.

The other substitute for the Cæsarean section was laparoelytrotomy, as suggested and successfully prac-

tised by Dr. T. Gaillard Thomas, in which the dangers of opening into the peritoneum and wounding the uterus are avoided by incising the walls of the abdomen in the line of Poupart's ligament, lifting the peritoneum, dissecting down to the vagina, dividing the vagina transversely, and then, having reached the cervix, extracting the child through the passage thus artificially created. Although the number of cases in which laparoelytrotomy has been performed is as yet comparatively small, the proportion of successes thus far is much greater than has been met with either in the Cæsarean section, or the Porro or Porro-Müller operation. During his remarks on this subject Dr. Lee quoted a number of statistics, the most of them from Dr. Harris's recent article in the *International Encyclopædia of Surgery*.

He next took up the topic of extrauterine pregnancy; and showed what excellent results had been accomplished by the use of electricity in the earlier months of ectopic gestation, as first successfully employed by Dr. J. G. Allen, of Philadelphia. Having spoken also of the results obtained by elytrotomy and laparotomy in the later months, he went on to speak of laceration of the cervix as a result of parturition. Personally, he said, he had never been successful in securing union when he attempted to repair this lesion immediately after labor, and he knew of but one surgeon who claimed to get good results in this procedure. In a large number of cases which were left to nature no subsequent operation was required.

With regard to lacerations of the perineum, however, the case is very different. There the advantages of immediate closure are so immense that he regarded it as a matter of great importance, and he said that he would now as soon think of leaving a parturient woman with the child undelivered in the uterus as to neglect sewing up a torn perineum. The neglect to do this on the part of many practitioners is the source of much suffering and misery, which might have been avoided with very little trouble.

Notwithstanding the fact that operative surgery has already accomplished so much in the field of obstetrics, he feels confident that, judging from the triumphs of the last few years, the results noted will be still more satisfactory in the future.

As to lacerations of the cervix resulting from parturition, he had seen many serious cases, the rent perhaps extending to the vaginal roof, recover perfectly under ordinary treatment, without resorting to operation; and his views on this point were quite in agreement with those of Dr. Lee.

In the English hospitals, more than in this country, obstetricians have to fight their way surgically against the mere physician, and also to contend against the active opposition of those recognized as general surgeons. But the same is true to a considerable extent here also, and he was happy to say that the obstetrician, notwithstanding the indifference manifested on the one hand, and the active opposition on the other, had won for himself an enviable position.

He need only point to the matter of abdominal section. Surgeons complain that we open the abdominal cavity too often. It may be; but that is simply a side issue. Before the obstetricians of to-day lies the grandest problem that can possibly engage their attention, viz., that in connection with the Cæsarean section. Dr. Polk said he did not doubt that within the next two years it would be possible to eliminate entirely from practice the most repulsive of all obstetrical procedures, the destruction of the life of the fœtus by craniotomy. When this has been accomplished there will have been achieved the greatest work ever done in surgery, and the honor of it will belong to the obstetrician.

DR. FORDYCE BARKER said that he was not inclined to accept any new proposition until time and experience had determined its real merits; and for a long time he had held his opinion in regard to the immediate operation for lacerated perineum in abeyance. Some years ago, at a meeting of the American Gynecological Society, a distinguished obstetrical authority made the statement that any physician who did not close by primary operation a rupture of the perineum occurring in his practice was neglectful of his duty. He did not express any positive opinion in regard to the matter at the time; but he hesitated to accept this dictum as correct, and at the present time he was still less inclined to acquiesce in its sentiment. In no case in his private practice had a secondary operation for lacerated perineum ever been performed; and this was simply for the reason that it had never been required. He would not say that he had never had any perineal lacerations, but only that none of them were of such a character as to demand a secondary operation. The uterus retained its position perfectly in every instance, and no other bad results occurred from the rupture. He would say, still further, that up to the past winter, in no private patient of his had a primary operation for lacerated perineum ever been performed.

During the season just closed, from November 1st to May 1st, there has been a peculiar epidemic in this city. In consultation, he had seen forty such cases; but in his own practice only one had occurred. There were no symptoms whatever till about the sixth day, when an explosion occurred in the system, the temperature rapidly running to 104°, 105°, or 106°. Only one, however, of the patients that he had seen died. In the case of the others the symptoms all disappeared, as a rule, within three days. Out of the entire party, he was called to see only twenty more than once. It was a significant fact, he thought, that in five out of the forty cases the primary operation for lacerated perineum had been performed, and in only one of these did union take place. This was the case in which the patient died. In the one that occurred in his own practice, there was some contraction of the pelvis, and he delivered the child from the superior strait with the Simpson modification of Tarnier's forceps. Here there was an extensive laceration of the perineum, and the primary operation was performed; but union did not take place.

In two cases that he knew of, in which the primary operation was performed, there was profuse uterine hemorrhage as a result of shock. After referring to other cases, Dr. Barker said that his mature opinion is that while there are, no doubt, cases in which the condition of the patient is so favorable that primary union is likely to result from an immediate operation, as a rule it is safer to avoid the operation, and trust to absolute cleanliness, and watchful care of the patient. He could not, therefore, accept the prevalent teaching of the day, and he was glad to hear Dr. Polk express

himself as he did in regard to primary operations. If there is any tendency to septic trouble, he thinks the immediate sewing up of the perineum would be likely to be attended with unpleasant consequences on account of the interference with free drainage which was thus caused.

Dr. Malcolm McLean said that he felt compelled to advocate the desirability of the primary operation in lacerations of the perineum. He had found that in those cases in which he sewed up the laceration with soft silk sutures the result was more satisfactory than in those which are left to nature. He does not believe, however, in using silver wire sutures, as they are apt to displace the parts; but silk sutures, deeply and carefully placed, are generally efficient and satisfactory, and they have the advantage, at all events, of never doing any mischief, even if they do not accomplish the desired result. Moreover, they serve a good purpose by their moral effect in backing up the accoucheur in case union does not take place, for in these days when so much is expected of one in the way of operative surgery, a reflection is apt to be cast upon the medical attendant if he neglects to take proper care of a lacerated perineum. In the main, however, he had found this simple operation of decided practical advantage.

Dr. H. J. Boldt spoke against the primary operation in lacerations of the cervix. If repair does not take place by nature, he said, it is easy to perform the secondary operation at any subsequent time that is convenient. He therefore protested against the immediate operation, unless there is a profuse hemorrhage due to the laceration of the cervix.

Dr. Polk said that he wished to correct a misapprehension on the part of Dr. Barker. His remarks were made in reference to lacerations of the cervix, and not of the perineum.

In answer to an inquiry by Dr. Barker, as to what his present views were in regard to the primary operation for perineal lacerations, Dr. Polk said that he felt constrained to say that he entirely acquiesced in the opinion expressed by Dr. McLean. He would admit, however, that there are exceptions, in which the conditions, so well described by Dr. Barker, contraindicate the primary operation. There are many cases in which the accoucheur has had a bad operation, or labor has been unduly prolonged, where the existing condition of shock would be likely to be followed by hemorrhage; and here we are perfectly justified in declining to operate. We must always be sure that the patient has not already been subjected to the risk of shock before we make an attempt to repair the laceration.

Like Dr. McLean, he greatly preferred the silk suture, and it is now some time since he had abandoned the use of wire in either primary or secondary operations of this kind. Silk properly prepared, and soaked in a bichloride solution before using, is quite as efficient as silver wire. It was natural that the latter should have been preferred to all others before the days of antiseptic surgery; but now that we can summon antiseptics to our aid, we are able to dispense with the metallic suture, which was always a cause of great pain and annoyance to the patient. The withdrawing of the sutures, also, is always a source of more or less suffering.

Dr. Lee, in closing the discussion, said that he differed from Dr. Barker in regard to the advisability of the closure of perineal lacerations. It might be that he had not been able to place his patients under the same favorable conditions for spontaneous recovery which the latter had; but, at all events, he had not been fortunate enough to obtain the same satisfactory results when such cases are left to nature. He then referred to the practice observed in the lying-in department of the New York Foundling Asylum, in which the patients were nearly all primiparæ. In this institution it is the uniform rule in every case, whether the patient is attended by the house-surgeon or one of the visiting physicians, that immediately after labor the condition of the perineum should be carefully ascertained, and if it was found to be decidedly torn, to close the laceration at once. Of course, he did not wish to be understood as advocating an operation where there was merely an abrasion, or a tearing of the fourchette, which is almost universally the case with primiparæ. He does not believe, either, in operating when there is profound shock present from loss of blood or other cause; but he had very rarely met with such a condition in his practice.

The plan which he adopts is simply to continue the chloroform under the moderate use of which the child has been born, and to make an examination of the perineum; when, if a decided rupture is found, the use of the chloroform is further continued, and the laceration repaired by means of silk sutures. The material which he uses is Skene's antiseptic silk, which he has found very efficient and satisfactory. Like Dr. Polk, he had not for some time employed silver wire sutures in either primary or secondary operations. If the posterior wall of the vagina is involved in the laceration, he usually puts in two or three catgut sutures at this point. The whole operation is a very simple one, and he had never seen shock caused by it. He always performs it under chloroform. In his practice at the Woman's Hospital, he has seen so many bad results, which might have been avoided, produced by neglect to perform the primary operation after rupture of the perineum, that he is most firmly convinced as to the great utility of the procedure.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, May 24, 1886.

L. A. Stimson, M.D., in the Chair.

RESECTION OF THE ELBOW-JOINT FOR ANKYLOSIS.

Dr. Sands presented a patient, fifteen years of age, who was seen by him last autumn, in consultation, in Dartmouth, N. S. The ankylosis at that time maintained the arm and forearm in almost a right line. The ankylosis, he thought, was almost complete, and had existed since the boy was about two years of age. The usual operation was performed, but when the patient was again seen by Dr. Sands, about a month ago, very much the same condition existed as before, and there was little, if any motion, the arm being almost useless. He repeated the operation of resection of the joint nineteen days ago, removing about two inches of bone, and placing the forearm at a right angle. Primary union of the divided soft parts occurred in thirteen days; the

dressings were then removed, exposing the line of the incision. Only one incision was made, situated in the median line. The adhesions were then forcibly broken up, the ends of the bones turned out of the wound, and two inches sawn off. The Esmarch bandage was used. The periosteum was not saved. He thought the subperiosteal flap in these cases is often prejudicial instead of being of advantage, as you can never tell how much bone is going to be reproduced, and the reproduction often causes stiffness of the joint, or limitation of motion, the very thing to be avoided. There were no signs of previous tubercular disease; there were no evidences of disease of the bone. The wound was absolutely dry in thirteen days. During the operation the one to a thousand bichloride solution was used, and the dressings saturated in the same and partially dried.

DR. GERSTER stated that he would venture to say the explanation of the prompt healing of the wound was because there was no tuberculosis present. He had noticed these secondary operations, as a rule, did well, and he thought the explanation might be that in the primary operation muscular planes of connective tissue were opened into almost as a rule; that the wounds therefore were of a rather irregular, sinuous character, drainage difficult, and spreading of inflammation easy, and that these circumstances formed favorable opportunities for suppuration; whereas, when you perform a secondary operation, you work in uniformly dense firm tissues, which give a comparatively smooth capsular wound, the drainage of which is perfect and tends to rapid recovery.

DR. SANDS remarked that he had no doubt that might be one explanation of the successful result. But he had noticed that where operations had been performed upon cicatrized parts, union by first intention was less apt to occur than when the parts were in a normal condition.

DR. STIMSON asked whether he had given up iodoform.

DR. SANDS replied that he had almost done so.

DR. LANGE then read a paper entitled

CLINICAL OBSERVATIONS ON FIBROMYOMATOUS TUMORS OF THE UTERUS.

(See page 651.)

DR. MARKOE asked whether the ovaries and Fallopian tubes were perfectly healthy in the first specimen.

DR. LANGE replied that they were. On presentation of the second specimen he drew attention to the fact that the tumors had grown between the broad ligaments and overlapped the uterus, as it were, so that only a small portion of the cervix was visible.

DR. MARKOE asked whether he had ever tried Schröder's method of closing the stump and removing the elastic ligature.

DR. LANGE replied he had not done so yet.

DR. MARKOE then asked what kind of suture he used.

DR. LANGE replied that it was a coarse silk suture, but that he had not seen any danger arise from the elastic ligature.

DR. MARKOE thought very favorably of this new method, and that to leave the elastic ligature in the abdominal cavity was a serious matter.

DR. GERSTER stated that, from the published reports of Dr. Hofmeier, an assistant of Schröder's in these operations for fibromyomata, a serious objection was the not rare oozing caused by the stitches used to close the stump. Although the gentleman who published the report seemed to belittle this occurrence, he, himself, thought it quite a serious objection, and he did not think the elastic ligature any objection when passed under the peritoneum, any more than the silk ligature; and besides it gave a safer closure of the vessels. It should be remembered that when the elastic ligature is applied it becomes very thin by tension, and so far as the mass itself is concerned does not cause more disturbance than silk.

DR. STIMSON asked how the ligature was passed under the peritoneum.

DR. LANGE replied that he imagined that both broad ligaments being tied, there exists on either side of the uterus, close to its edge, an opening through which the most median ligature of the broad ligament has been passed. Between these two openings the elastic ligature is passed, underneath the peritoneal covering, first on the anterior, then on the posterior side of the uterus, and tied at the point of introduction. He had formerly used a thin leaden ring for securing the elastic ligature, which was tightly squeezed together. Lately he had used a coarse silk ligature for the same purpose. In one of his cases the elastic ligature with lead ring had passed through the cervix as mentioned before.

DR. GERSTER remarked that he would like to bring up a practical question which the general surgeon has frequently to meet, and that is in reference to the length of the incision into the abdominal cavity. He does not consider that the length of the incision into the abdominal cavity materially increases the danger of the operation, but did not desire to enter into a discussion upon the subject, as his experience is comparatively small; but still he could speak from experience of the bad consequences of too small an incision in these cases of laparotomy. He had witnessed a number of ovariotomies in which enormous veins had been torn across during the efforts of extracting a large tumor through a small incision, the resulting hemorrhage being very severe; and the difficulty of finding the bleeding vessel being much increased owing to the smallness of the primary incision, which ultimately had to be enlarged after all. He also quoted one instance in which he witnessed an extensive and fatal laceration of the intestines, owing to forcible attempts at extraction of a large tumor through a small orifice, in what was at first an uncomplicated case. Had a larger incision been made in the first place, he thought the whole of the tumor, together with the adherent gut, might have been taken out of the abdomen without use of force, and the adhesions removed with ease; but owing to the accidental rupture of the intestines, and consequent shock, the patient died as the result of the operation. Did time permit, he could recite several more similar cases.

DR. BRIDDON thought that the statistics of the English ovariotomist, Sir Spencer Wells, relating to the mortality following the long and short abdominal incisions, had exerted an unfavorable influence on the practice of American surgeons; the long incision had really nothing to do with an increase in the mortality, except that it was required in a more formidable class of operations either as regards the size of the tumor or the presence of adhesions; there are many and serious disadvantages in using the short incision.

Dr. Gerster thought it was only a general surgical principle that he adhered to in this respect.

REMOVAL OF PORTION OF TONGUE FOR CANCER.

Dr. Sands presented a specimen of a portion of the tongue removed from a man forty-seven years of age, on account of cancerous disease which began about a year ago. It extended from the tip of the tongue backward, about two inches, involving mainly the right side of the tongue, but on removal was found to have extended deeper into the left side than was at first imagined. The specimen was removed to day by Whitehead's method, the arteries being tied instead of twisted. He thought that the idea of extensive hemorrhage in removal of the tongue is only a bugbear. During the last three operations of this kind which he has performed, the loss of blood did not exceed two or three ounces.

Dr. Gerster remarked that he wished to put on record a case in which he had serious difficulty on account of blood getting into the larynx. It was an operation involving the tongue and floor of the right side of the mouth. The lingual arteries were tied and Whitehead's speculum introduced into the mouth, and he then proceeded to operate in the usual manner. Hemorrhage was slight, but a serious difficulty in respiration was caused by a clot of blood being drawn into the glottis. Alarming asphyxia occurred, and tracheotomy had to be performed rapidly; this at once relieved the patient and respiration was again established; the patient, however, died of exhaustion due to acute mania at a time when the wound was nearly healed. In another case, occurring shortly after the first one mentioned, he performed preliminary tracheotomy, using the tampon canula; and the facility with which the operation was carried on without danger of asphyxia was marked.

Dr. Sands thought that in these operations about the mouth partial anæsthesia is better, as the patient then has the power and will to eject anything from the larynx should there be danger of asphyxia.

Dr. Stimson asked whether cocaine was used, and how.

Dr. Sands replied that he injected it along the gustatory nerve, the anæsthesia produced being very great, fifty minims of a four per cent. solution being used. Six injections were made altogether. He thought the use of cocaine in these cases is of signal benefit.

Dr. Briddon stated that he nearly lost one case of this class during the operation, and thought that Nussbaum's method of anæsthetizing the patient is very good in these cases.

Dr. Markoe presented a patient in whom he had used

WIRE SUTURES FOR UNUNITED FRACTURE OF THE CLAVICLE.

The fracture had been of some months' standing, and in March last when the young man came under Dr. Markoe's observation, it was found that he was suffering from an ununited fracture of the clavicle, being unable to raise the arm up to more than in line with the shoulder. The power of lifting with the injured arm was very greatly impaired.

On March 17th he was operated on, the fractured ends of the bone being sawed off so as to present a fresh surface and clean section; these were then wired together with silver wire and dressed antiseptically; the result being an excellent union of the bones and perfect restoration of the functions of the shoulder-joint, the strength of the arm constantly increasing. He can now raise his hand to the top of his head and use a brush or comb. There was slight suppuration caused by the silver wires and they were removed; after their removal the wound healed. Dr. Markoe stated that the only case of wiring of ununited fracture of the clavicle that he could find recorded was reported by Mr. Barker to the Clinical Society of London, in December, 1885.

PERMANENT CURE OF STRICTURE OF THE ŒSOPHAGUS.

Dr. Sands called attention to his paper read before the Society in October of 1884, upon "Stricture of the Œsophagus," quoting as an instance the case of a young girl. He thought that it had been the general impression of late years that stricture of the œsophagus could not be permanently cured, our efforts being confined to affording temporary relief. But in this instance he would like to have it put on record, that the relief then afforded has remained permanent up to the present time, although the stricture was excessively tight. A letter just received from the father of the child referred to stated that: "Addie is quite well. It is a little more than a year since the bougies were inserted. She eats without the slightest difficulty any kind of food as well as I can, and has not had within that time the slightest perceptible trouble."

NEW INVENTIONS.

A FORM OF PLANE MIRROR, FOR THE SHADOW-TEST.

By EDWARD JACKSON, M.D.,
of Philadelphia.

This method of measuring refraction may be practised with almost any piece of mirror-glass, with a sight-hole scraped in the silvering. But for convenience and accuracy the mirror represented, of full size, in the accompanying cut, is much to be preferred.

The sight-hole being cut through the glass and the edges blackened, reflections are avoided, which when present are very apt to mask the light-area in the pupil, making the movements difficult to see, as the point of reversal is approached.

The mirror is one and a half inches in diameter. When a narrower mirror is used, the illuminated area on the face, under certain conditions, passes entirely off the eye before the light-space in the pupil has moved far enough to indicate distinctly whether that motion is direct or reversed. This is, of course, very confusing to the observer. It is quite apt to occur when the segmental tilting mirror, usually furnished with the best American refraction ophthalmoscopes, is employed for this test. The width of one and a half inches is shown, both by calculation and trial, to be sufficient under all usual conditions.

The straight cylindrical handle is adopted because it enables the surgeon to rotate the mirror exactly about a definite axis; and in measuring astigmatism it is extremely important to secure this accurate rotation about

axes perpendicular to the planes of the principal meridians of refraction.

The necessary movements of rotation being but slight, the handle is made comparatively thick, so as to give

better control of these slight movements. In using the mirror, the axis of rotation is always the axis of the cylindrical handle.

The mirror is made by James W. Queen & Co., of Philadelphia.

NEWS ITEMS.

THE PENNSYLVANIA STATE MEDICAL SOCIETY held its annual session at Williamsport, on June 2d, 3d, and 4th, Dr. E. A. Wood, of Pittsburg, presiding. The special interest of the meeting centred around the delegation of the Philadelphia County Medical Society, against whose admission a protest had been filed, similar to that which had been presented at the meeting of the American Medical Association at St. Louis.

Dr. Helsby, of Williamsport, Chairman of the Committee of Arrangements, announced that a protest had been received, and the President stated that, in accordance with the precedent established by his predecessors, the delegates would not be allowed to take their seats, and the protest would be referred to the Judicial Council.

Dr. Dulles, of Philadelphia, then offered the following resolution:

Resolved, That it is the sense of the Society that when a protest is presented against the admission of delegates from county medical societies, this shall not act as a bar to their registration, but that they shall be registered upon presentation of such certificates as are provided for by Article III. of the Constitution, and not be deprived of the rights of delegates until the charges of the protest are established.

The adoption of the resolution was strenuously opposed by Dr. Pancoast, and advocated by Drs. Dulles, Keen, and H. C. Wood. Finally, when a vote was taken, it was adopted almost unanimously.

On the second day the Judicial Council reported that it had decided, after careful investigation, that the grounds of the protest were not sustained, and that the delegates of the Philadelphia County Medical Society were legally elected, and were entitled to seats in the Convention. This announcement was greeted with prolonged applause.

The following officers were elected for the ensuing year:

President.—R. Davis, M.D., of Wilkes-Barre.

Vice-Presidents.—Hobart Allport, M.D., of Phillipsburg; Isaac N. Kerlin, M.D., of Elwyn, Delaware Co.; D. J. McKibben, M.D., of Ashland; and W. B. Lowman, M.D., of Johnstown.

Judicial Council.—John H. Packard, M.D., of Philadelphia; John Curwen, M.D., of Warren; and A. H. Schaffer, M.D., of Mifflin.

The Society elected as its delegates to the American Medical Association all the delegates of the Philadelphia County Medical Society who were refused admission at St. Louis, and who, by virtue of their presence at Williamsport, were eligible for election.

It was decided to hold the next meeting at Bedford, and Dr. A. Enfield was made Chairman of the Committee of Arrangements.

INOCULATION EXPERIMENTS WITH RABIES VIRUS AT BALTIMORE.—DR. GEORGE M. STERNBERG informs us of the following interesting facts and experiments:

Mr. H., aged forty-seven years, residing in Brooklyn, N. Y., was bitten by a dog May 6th, was taken sick May 12th, and died May 14th, with pronounced symptoms of hydrophobia. The dog which inflicted the bite was shot, but not examined, and there is no evidence that he was rabid other than the death of Mr. H., which, in my opinion, furnishes proof positive that such was the case.

The fact that Mr. H. died of hydrophobia is established by experimental evidence. A post-mortem examination was made by Dr. Spitzka, and through his courtesy, and that of Dr. Van Cott, of Brooklyn, I received portions of the brain and spinal cord. On Monday, May 17, I inoculated three rabbits by trephining, according to Pasteur's method. One died the following day from the operation. The others remained in good health until Wednesday, June 2, when symptoms of paralysis of the posterior extremities were observed. The following morning the posterior extremities were completely paralyzed. This paralysis continued to progress until the animal was completely helpless. The symptoms were precisely those described by Pasteur, and exactly such as I had observed in his laboratory last spring. The animal was on the point of death on Saturday evening, and I killed it and inoculated two more rabbits with material from the medulla oblongata. The companion rabbit first showed signs of paralysis in

the posterior extremities on Saturday evening. This morning (Monday) it is completely paralyzed posteriorly, and undoubtedly has hydrophobia as a result of the inoculation made. One rabbit was inoculated with cord, and one with material from brain of Mr. H. The prolonged period of incubation—sixteen days in one case and nineteen days in the other—may be due to the fact that the material used was already two days old when the inoculation was made.

The New York Chamber of Commerce on the Disinfection of Rags.—The New York Chamber of Commerce adopted on June 3d the following opinion:

1. That invoices of rags accompanied by a certificate of the United States Consul that they were all gathered in a country which at that time was, and for at least six months immediately preceding had been, free from cholera, or other contagious or infectious epidemic diseases, should not be required to be disinfected either before shipment or on arrival. In the absence of such certificate, rags coming from a port or country claimed to be free from such diseases should be disinfected on arrival.

2. That rags gathered in any port or country where such diseases then were, or had been prevalent at any time within six months immediately preceding the shipment thereof, and whether such rags are exported direct, or via any other port or country, and whether landed or stored therein, or transhipped overside to another vessel for reëxport, should be prohibited from being landed in the United States so long as any prohibitory order, published by the Government or health officers, remains in force; nor when the order is rescinded should such rags be landed until disinfected on arrival.

3. That quarantine regulations in relation to rags or other merchandise, or the disinfection thereof, should be uniform at all ports of entry in the United States, and should be under the sole control and management of the United States Government.

Cholera in Venice and Florence.—The Marine Hospital Bureau has received information from Venice, under date of June 6th, to the effect that during the last fourteen days there has been a daily average of 41 cases and 22 deaths from cholera; the maximum number of cases being 61 with 36 deaths. The same bureau has also received information from Florence, Italy, dated June 3d, that two deaths have occurred there from cholera and more expected.

German Gynecological Congress.—The first meeting of the German Gynecological Society will be held in Munich on the 17th, 18th, and 19th of June, 1886.

Medical Schools in Japan.—Japan has been mapped out into six divisions, and a medical college is to be established in each division.

Ventilation of Sewers by Connection with Tall Chimneys.—R. M. Bancroft writes, in *The Sanitary Engineer*, that in England there are about twenty towns where some of the sewers are ventilated by means of tall chimney shafts. The owners of the chimneys give permission to the local boards or town authorities for connecting the sewers with the chimneys, and in many instances the draught of the latter has been improved. It is queried whether this method has been tried in the United States, and with what results.

Procreation at a Premium.—A decree was recently enacted in France, reaffirming the law of the 29th Nivôse, year XIII., according to which every father of a family having seven living children may have one of his sons educated at the expense of the State. The object, of course, is to increase the population of the country, and the immediate occasion of the degree was the publication last year of statistics showing a large falling off in the average size of families in France.

NOTES AND QUERIES.

CORRIGENDUM.

Page 624, twelfth line from top of first column, *for* "a level teaspoonful," *read* "a level teaspoonful and a half."

Page 624, first line from top of second column, *for* "two ounces," *read* "one ounce."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JUNE 1 TO JUNE 7, 1886.

Baxter, J. H., *Colonel and Chief Medical Purveyor.*—Ordered to proceed to New York City on public business, and on the completion thereof to return to his station.—*S. O. 128, A. G. O.*, June 3, 1886.

Page, Charles, *Lieutenant-Colonel and Surgeon.*—Granted leave of absence for one month, with permission to apply for ten days extension.—*S. O. 55, Department of Missouri*, June 1, 1886.

Adair, G. W., *Captain and Assistant Surgeon.*—Granted leave of absence for two months, to take effect when his services can be spared.—*S. O. 128, A. G. O.*, June 3, 1886.

Gardner, E. F., *Captain and Assistant Surgeon.*—Ordered for duty at Madison Barracks, New York.—*S. O. 49, Division of the Atlantic*, June 1, 1886.

Carter, W. F., *Captain and Assistant Surgeon.*—Ordered for duty (temporary) at Fort Concho, Texas.

Par. 2, *S. O. 55*, Department of Texas, *c. s.*, granting Assistant Surgeon Carter leave of absence for one month, is revoked.—*S. O. 46, Department of Texas*, June 1, 1886.

Robertson, R. L., *First Lieutenant and Assistant Surgeon.*—Relieved from temporary duty at Fort Snelling Minn., and ordered to Fort Keogh, M. T.

Phillips, John L., *First Lieutenant and Assistant Surgeon.*—Relieved from duty at Fort Keogh, M. T., and ordered to Fort Lisston, D. T.—*S. O. 45, Department of Dakota*, May 24, 1886.

Black, C. S., *First Lieutenant and Assistant Surgeon.*—Ordered for duty at Fort Stockton, Texas.—*S. O. 64, Department of Texas*, June 1, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 5, 1886.

Smith, Howard, *Surgeon.*—Detached from the "Nipsic," and placed on waiting orders.

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1001 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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VOL. XLVIII. SATURDAY, JUNE 19, 1886. No. 25.

ORIGINAL ARTICLES.

OBSERVATIONS ON THE DIURETIC INFLUENCE OF COCAINE.

BY J. M. DA COSTA, M.D.,

PHYSICIAN TO THE PENNSYLVANIA HOSPITAL,

AND

CHARLES BINGHAM PENROSE, M.D.,

RESIDENT PHYSICIAN TO THE PENNSYLVANIA HOSPITAL.

IN some researches on cocaine, especially its hypodermic employ, made at the Pennsylvania Hospital, and subsequently published by one of us,[1] the fact was noticed that cocaine seems to increase the flow of urine. During the past winter this matter has been more particularly studied in the wards of the Hospital, and with conclusive results. The urine was examined in upward of twenty cases in which the patients were taking cocaine for one purpose or another, and, with a single exception, the flow of urine was greater; in some instances, indeed, it became a matter of much inconvenience to the patient by obliging him to get up at night. But as some of the patients were also taking other medicines, or there were in them special morbid states which might make the inferences doubtful, we selected eleven cases for study in which the urinary secretion had been watched for some time and found to vary but little, and to which during the administration of cocaine, as well as for a day or two before, no other remedy was given.

In the subjoined Table I. can be seen the result in eight of the eleven cases. They represented persons wholly free from any organic disease; or—though in one instance only—with a cardiac lesion; or with Bright's disease of the kidneys: a varying list purposely selected, and of which those who presented abnormal conditions will be presently specially noted.

In the three remaining cases out of the eleven, the quantity of urine was somewhat increased by one grain of cocaine three times daily, but not sufficiently to give a decided result.

Now of the cases tabulated three, it will be seen, had Bright's disease of the kidney, in Case IV. of the form of chronic parenchymatous nephritis attended with considerable general dropsy. Yet this was not entirely due to the renal lesion; for there existed also a mitral and aortic disease, with a heart of only moderate strength The increase of the urine was very striking and rapid; and the dropsical symptoms were much relieved.

The albumen in Case V. was small in quantity, and met with, as it was, in a healthy-looking young sailor just from the sea, was thought to be due to a mere temporary congestion of the kidneys. In fact, he stated that, for as long as he could remember, there were often periods in which he passed a very small amount of urine. He proved highly susceptible to the action of cocaine. One-half grain, hypodermically administered, produced on several occasions headache, nausea, and vomiting. But the diuretic influence of the drug was always most striking, and persisted for days after it was withdrawn. Table II., made out after one of his attacks of very scanty urine, speaks for itself.

It may be added that this man was much benefited, and left the hospital with but a slight renal affection remaining.

An interesting question arising in connection with this, as well as with the other cases of albuminuria, is, whether the amount of albumen is diminished by the administration of cocaine; and whether we are likely to find in cocaine, irrespective of its diuretic influence, a remedy of value in Bright's disease. It does not so seem; for, in the cases in which we examined into the matter, the relative amount of albumen in a given quantity of urine was apparently

TABLE I.—NUMBER OF OUNCES OF URINE PASSED BEFORE AND WHILE TAKING COCAINE.

	Urine passed before taking cocaine.	Amount of cocaine administered.	Urine passed while taking cocaine.			
			1st day.	2d day.	3d day.	4th day.
Case I.	28 ounces.	gr. ½, twice daily by mouth.	32 oz.	32 oz.		
" II.	48 "	gr. ½, thrice " " "	80 "	60 "	76 oz.	
" III.	64 " (trace of albumen).	gr. ½, " " " "	76 "	72 "		
" IV.	48 " (much albumen, epithelial casts).	gr. i. thrice daily, hypoderm.	80 "	80 "	80 "	96 oz.
" V.	24 " (trace of albumen).	gr. ½, once daily, hypoderm.	48 "	64 "	48 "	
" VI.	40 "	gr. j. thrice daily, by mouth.	96 "	80 "	80 "	80 "
" VII.	49 "	gr. j. " " " "	90 "	52 "	96 "	90 "
" VIII.	48 "	gr. j. " " " "	32 "	20 "	24 "	16 "

[1] Transactions of College of Physicians of Philadelphia: THE MEDICAL NEWS, December 13, 1884.

Table II.—Number of Ounces of Urine passed in Twenty-four Hours.

	1st day. No cocaine administered.	2d day. 1 grain cocaine by mouth.	3d day. ½ grain cocaine by mouth.	4th day. No cocaine.	5th day. No cocaine.	6th day. No cocaine.
Case V.	14 ounces.	88 ounces.	72 ounces.	72 ounces.	64 ounces.	24 ounces.

unchanged by the cocaine. Indeed, it appeared as if the whole amount passed in twenty-four hours with the increased secretion of urine was generally larger. Certainly in the chronic cases of the disease, therefore, we have rather a contraindication for the employ of cocaine, except for temporary purposes.

Another interesting question is, what elements of the urine are excreted in larger amounts under the diuretic influence of the cocaine. Is it simply the water which is increased? We think not; since, notwithstanding the larger flow, the specific gravity is but slightly altered. Thus, in Case V., in spite of the extraordinarily augmented secretion, the specific gravity remained much the same; it varied from 1.020 to 1.023 during the observations, the precaution having been taken to remove the albumen by boiling and filtering. We believe that the solids are excreted in larger amounts; we have found copious deposits of urates. Whether the other ingredients of the urine, and especially the urea, are excreted in more considerable quantities we have not yet determined.

Cocaine, as can be easily observed by sphygmographic tracings, undoubtedly raises arterial tension. Is not this largely the explanation of its diuretic action? Perhaps too great a tension may afford the explanation of its occasional failure as a diuretic; or rather of its having even the reverse effect.

Thus, Case VIII., taking one grain three times daily by the mouth, suffered from headache and violent attacks of intestinal colic; the face was flushed, the pulse full and strong. The quantity of urine was much diminished; the specific gravity was raised from 1.020 to 1.025, and there was a very large deposit of urates.

Is the diuretic action of cocaine persistent, or does it stop immediately upon the withdrawal of the remedy? We found that it did not; that, indeed, the urinary flow was apt to remain freer for some time, and then appeared for a certain period to be more easily influenced by other diuretics than before. How far we can make use of cocaine for augmenting the excretion of special solid ingredients of the urine, must remain undetermined until this part of the inquiry has been more fully worked out.

The therapeutical application of these observations is self-evident. Irrespective of its diuretic influence, we ought to obtain advantage from cocaine in instances of weak heart with dropsy; and, so far as we have been able to pursue this line of investigation, such is actually the case. In uræmia, with scanty secretion of urine, the remedy is also well worth a trial.

BACTERIOLOGICAL NOTES.

By George M. Sternberg, M.D.,
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Classification.—Rapid progress has been made in our knowledge of the bacteria since Koch has given us a ready method of isolating species which are associated, by means of "plate cultures," and of recognizing differences as to mode of growth, color, etc., by cultivation in solid media. But this progress has rather increased than diminished the difficulties connected with an attempt to classify these microörganisms.

It is but a few years since Billroth maintained that the bacteria, with the exception of the spiral forms, belong to a single species, his *coccobacteria septica*. And the distinguished German botanist, Nägeli, was of the opinion that altogether too many species had been distinguished. He says:

"I am rather inclined to suppose that there exists among them a small number of species, which have little in common with the genera and species admitted to-day, and of which each runs through a cycle of determined forms sufficiently numerous. Each of the veritable species of schizomycetes is not limited to presenting itself under the different forms of *micrococcus*, *bacterium*, *vibrio*, and *spirillum*, but can also show itself as the agent of acidification of milk, of putrefaction, and as the agent producing several maladies."[1]

Recent researches do not sustain this view. On the contrary, it has been demonstrated that too few species were distinguished by the earlier investigators, and the result of more extended studies, by the exact methods devised by Koch, has been to show that the bacterial flora is extremely rich in species, and that the contrary opinion was based on imperfect knowledge.

In a laboratory handbook recently published in Germany, Eisenberg, one of Koch's pupils, gives a list of species which are now, or have been, in cultivation in the laboratory of the distinguished German bacteriologist, and which may be distinguished by constant differences in form, color, pathogenic power, or mode of growth in culture media. The microorganisms included in this list are classified as follows:

I. Not Pathogenic: A, *liquefy gelatine;* 1, micrococcus prodigiosus; 2, bacillus indicus (*Koch*); 3, orange sarcina; 4, violet bacillus from water; 5, red bacillus from water; 6, greenish-yellow bacillus from water; 7, gas-producing bacillus from water; 8, liquefying bacillus from water; 9, bacillus sub-

[1] Quoted from Magnin, Les Bacteries, 1878, p. 48.

tilis; 10, *wurtzel* bacillus from earth; 11, potato bacillus; 12, bacillus megaterium (*de Bary*); 13, bacillus butyricus; 14, Miller's epsilon bacillus. B, *do not liquefy gelatine:* 15, yellow sarcina; 16, white sarcina; 17, greenish-yellow bacillus from water; 18, fluorescent bacillus from water; 19, white bacillus from water; 20, bacillus syncyanum —blue milk (*Hüppe*); 21, bacillus of lactic acid fermentation (*Hüppe*); 22, bacillus resembling *B. subtilis No. 1*, from feces (*Bienstock*); 23, bacillus resembling *B. subtilis No. 2*, from feces (*Bienstock*); 24, bacillus of albumen-decomposition, from feces (*Bienstock*).

II. PATHOGENIC BACTERIA: A, *cultivated external to the bodies of animals:* 25, cholera Asiatica (*Koch*, comma-bacillus); 26, Finkler Prior's bacillus; 27, cheese spirillum (*Deneke*); 28, Brieger's bacillus; 29, Emmerich's bacillus; 30, diphtheria bacillus (*Löffler*); 31, gonococcus (*Bumm*); 32, bacillus of fowl cholera (*Pasteur*); 33, bacillus of rabbit septicæmia (*Koch*); 34, bacillus of malignant œdema—vibrion septique (*Hesse*: 35, bacillus of mouse septicæmia (*Koch*); 36, bacillus of swine-plague—Schweinerothlauf (*Shutz*); 37, bacillus resembling that of mouse septicæmia, from feces (*Bienstock*); 38, bacillus anthracis; 39, pneumonia coccus (*Friedländer*); 40, coccus resembling the pneumonia coccus, from pus (*Passet*; 41, micrococcus of osteomyelitis (*Becker*); 42, staphylococcus pyogenes aureus; 43, staph. pyogen. citreus; 44, staph. pyogen. albus; 45, mic. pyogen. tenuis; 46, staph. cereus albus; 47, staph. cereus flavus; 48, bacillus saprogenes I.; 49, b. saprogen. II.; 50, b. saprogen. III.; 51, B. pyogen. fœtidus; 52, streptococcus pyogenes (41–52 described by *Rosenbach* and by *Passet*); 53, streptococcus erysipelatis (*Fehleisen*); 54, bacillus pyocyanus—green pus; 55, bacillus of glanders (*Löffler-Schütz*); 56, tetanus bacillus (*Nicolaier*); 57, micrococcus tetragonus (*Koch. Gaffky*); 58, tubercle bacillus (*Koch*); 59, bacillus of typhoid fever (*Gaffky*); 60, bacillus alvei—foul brood in bees (*W. Cheyne*); 61, b. of vagus pneumonia (*Gens Schon*).

To this list are added the following which have not yet been cultivated; 62, lepra bacillus (*Armauer-Hansen*); 63, bacillus of rhinoscleroma (*Frisch*); 64, spirochæte obermeieri, relapsing fever; 65, syphilis bacillus (*Lustgarten*).

An inspection of this list shows that many of the species recognized by Cohn, Schroeter, and other authors, who attempted to classify these minute organisms a few years since, are either ignored or appear under new names. Thus, we look in vain for the chromogenic micrococci described by Cohn, *M. luteus*, *M. chlorinous*, *M. aurantiaeus*, *M. cyaneus*, and *M. fulvus*. Their omission is doubtless due to the fact that the characters given by the authors who named them are not considered sufficiently distinctive for their recognition. *M. luteus*, for example, is described by Cohn as a yellow gelatinous mass found upon potatoes. But we now know several distinct species of *Micrococcus* which have a yellow color and which grow readily upon potatoes. We notice, too, that several species described by authors outside of Germany, do not receive recognition. We do not find the bacillus of symptomatic anthrax, to the study of which Arloing, Comeoin, and Thomas, have given so much time, or the micrococcus to which the present writer has given the name of *M. Pasteuri*. Evidently, the list is far from being complete, so far as known species are concerned, and there is every reason to believe that it includes but a small proportion of the species to be found in nature.

No doubt future investigations will demonstrate the existence of a most extensive bacterial flora, as rich in species perhaps, as the DIATOMACEÆ, or as one of the orders of microscopic fungi—the CONIOMYCETES, for example. And, as in the case of the better known microscopic plants named, it is probable that we shall find that certain species are widely distributed, while others have a limited geographical range. The bacterial flora of the tropics will probably be found to be especially rich in species, and when the endemic diseases of tropical climates—diarrhœas, dysenteries, fevers, etc., have been carefully studied, by modern methods, there is good reason to hope that the list of recognized pathogenic organisms will be considerably extended.

Many bacteriologists think that for the present we cannot do better than to accept, with some modifications, the classification, based upon morphological characters, which Cohn proposed some years since. This author divided the bacteria into four groups, viz.:

1. The *Sphærobacteria* (spherical bacteria).
2. The *Microbacteria* (short rods).
3. The *Desmobacteria* (straight filaments).
4. The *Spirobacteria* (spiral filaments).

Under the heading, sphærobacteria, Cohn placed a single genus, *Micrococcus;* under the second heading, a single genus, *Bacterium;* under the third heading, two genera, *Bacillus* and *Vibrio;* while the fourth heading included the genera *Spirillum* and *Spirochæte*. The utility of maintaining the second group—Microbacteria—may be questioned. Dr. Koch and his pupils seem to have banished the term *Bacterium*, as a generic name, from their nomenclature. For the Berlin school of bacteriologists, there is no half-way morphological station between spherical organisms—micrococci—and rod-shaped organisms—bacilli. The genus, *Bacterium*, of Cohn is no longer recognized by them, and all rod-shaped organisms are spoken of as bacilli. We have long since been convinced that there is no well-defined dividing line between Cohn's genus *Bacterium* and his genus *Bacillus;* but it must be admitted that the line between the micrococci and bacilli on the one hand, and the bacilli and spirilla on the other, is hardly more definite. There is no hesitation in calling a spherical organism which multiplies only by binary division, a micrococcus, and a rod-shaped organism which forms endogenous spores, a bacillus. But there are certain organisms which are neither distinctly spherical, nor distinctly rod-shaped, but rather of an oval form, and which, so far as we know, do not multiply in any other way than by binary division. Shall we speak of these as oval micrococci, or shall we call them bacilli? If the oval form is only apparent when the organism is in

active multiplication, and the typical spherical form is seen to prevail when such active multiplication ceases, there should be no hesitation in calling the organism a micrococcus, for micrococci necessarily assume a more or less elongated form just before they undergo binary division. When, however, the separate elements are of a long oval form after active multiplication has ceased, if we adopt the nomenclature of the Berlin school, we must speak of the organism as a bacillus. According to this nomenclature, Pasteur's "micrococcus" of fowl cholera, and Friedländer's "micrococcus" of pneumonia, become bacilli. There is no evidence that either of these organisms forms spores, and the fact that by a strict adherence to a morphological system of classification they are grouped with spore-forming bacilli, such as *B. anthracis* and *B. subtilis*, shows how artificial this system of classification is. The difficulties into which it leads us are further shown by the impossibility of drawing a sharp line at the other end of the scale, between the bacilli and the spirilla. Thus, Koch and his pupils do not hesitate to speak of curved or "comma-shaped" bacilli, although the so-called "commas" seem to represent a stage in the life-cycle of a spiral organism.

Zopf has attempted to give us a more natural system of classification and has divided the cocci—COCCACEÆ—into five genera, viz.: *Streptococcus*, *Micrococcus*, *Merismopedia*, *Sarcina*, and *Ascococcus*. A second group—BACTERIACEÆ—is made to include the following genera: *Bacterium*, *Spirillum*, *Vibrio*, *Leuconostoc*, *Bacillus*, *Clostridium*.[1]

There can be no question as to the utility of this classification if the characters upon which Zopf depends in establishing his genera are truly distinctive. Of this, we are not entirely convinced, and it will be necessary thoroughly to test Zopf's generic characters by Koch's methods of culture before we can finally accept his classification. Thus, the characters which distinguish the five genera of the COCCACEÆ depend upon the mode of division and the resulting arrangement of the cocci in chains, in groups of four, in cubical "packets," in irregular masses, or in gelatinous pellicles. Division in one direction only, and the formation of chains—torula-chains of Cohn—are the distinguishing characters of the genus *Streptococcus*; division in two directions, forming groups of four elements in a single plane is made the generic character of *Merismopedia*. Division in three directions, forming cubical groups of eight elements, distinguishes *Sarcina*.

The genus *Micrococcus* is distinguished by the formation of irregular masses, or colonies, resulting from division in one direction, without subsequent cohesion of the cocci, as occurs in *Streptococcus*.

It is well known to bacteriologists that all of these modes of division, and the resulting group-forms, occur among the cocci, and the only question is whether the same coccus may not, at different times, and under different circumstances, form chaplets, by division in one direction, or groups of four by division in two directions, or irregular masses by the non-adhesion of the individual cocci after fission.

The writer's observations have convinced him that division in one direction is a constant character in some instances at least, and that in other cases the formation of tetrads by division in two directions is a well-established habit of growth. On the other hand, I have frequently observed tetrads and linear chains of four elements in the same culture, believed to be pure, and have been led to conclude that, in certain cases, at least, binary division having resulted in the formation of a pair, each element of this pair may again divide in the same direction, forming a linear group of four, or that each element of the pair may divide in a line at a right angle with the first line of division, forming a group of four, or tetrad. But I have not in these cases seen the linear arrangement extend beyond the formation of chains consisting of four elements, and am not disposed to insist upon this observation as a fatal objection to Zopf's generic characters.

The genus *Sarcina* has long since been recognized by botanists, and seems to be sufficiently well characterized by the mode of division in three directions which results in the formation of cubical masses containing eight elements, or a multiple thereof.

With reference to Zopf's genus *Micrococcus*, as distinguished from *Streptococcus*, it seems to me that further observations are necessary before we can accept the characters given as generic. It is not certain that cocci, which are usually found in chains, when in active growth, do not, under certain circumstances, form irregular masses in which the several elements are disunited.

I shall not attempt at the present time to discuss Zopf's second group—BACTERIACEÆ—but would remark that the classification proposed by this author seems to me to possess decided advantages over that of Cohn and to be worthy of adoption by bacteriologists, provisionally, at least; subject, of course, to such modifications as may be required by a more precise and extended knowledge of these minute organisms.

The attempt made by Cohn to divide the micrococci into three physiological groups—*Chromogenes*, *Zymogenes*, and *Pathogenes*—can no longer be sustained. We know now that some of the chromogenic micrococci are pathogenic, and the fact that a certain species has been proved to be pathogenic with reference to certain animals does not exclude it from the list of organisms which may give rise to the production of special chemical products by "fermentation"—*Zymogenes*.

We would remark, also, with reference to the division which Eisenberg makes, in the list which we have copied from his recent work, into "pathogenic" and "non-pathogenic" bacteria, that this classification simply represents the present state of knowledge. While we have satisfactory experimental evidence that many of the organisms included under the one heading have pathogenic power, this evidence is wanting for others; and we cannot assert positively that the organisms included under the other heading are non-pathogenic, for *all* animals and under all circumstances.

[1] It is not our intention to discuss *in extenso* the subject of classification, and for our present purpose it is unnecessary to refer to the two additional groups of Zopf, viz.: *Leptotricheæ*, containing four genera, and *Cladothriceæ*, containing a single genus.

SPECIES.—As among the higher plants, a *constant* difference in form, or in mode of development, suffices among these lowly plants to distinguish one species from another. But we have learned that beyond this there are essential and constant differences by which we may distinguish between organisms which have the same morphological characters. A constant difference in color, or in mode of growth in culture media, or in pathogenic power, suffices to show that two organisms which have the same form are not identical. For the pathologist it matters little whether these characters are conceded to have *specific* value or not. It is well known that wide differences of opinion exist among botanists as to the specific value of similar characters among higher plants, and the question whether two plants which resemble each other, and yet present differences as to color of blossom, vigor of growth, etc., are distinct species, or simply varieties of a single species, is often a vexed one.

We do know, however, that among cultivated plants very wide differences of this kind may be the direct result of artificial selection and cultivation; and it is now generally conceded that similar differences in allied species, and genera, have resulted in the course of time from natural selection. There is, therefore, a genetic relationship, near or remote, between species and genera as well as between varieties, and it is evident that any system of classification is essentially artificial; for nature is continuous and the genetic and specific pigeon-holes of the systematic botanists are simply a matter of convenience.

Among the higher plants artificial varieties are propagated by budding, and there is no certainty that the special features which characterize the variety—color of leaf or blossom, form and flavor of fruit, vigor of growth, etc.—will be propagated by planting seed. Among the minute plants at present under consideration, the micrococci—which seem to be at the very foot of the scale of living organisms, budding—binary division—is the sole mode of multiplication. No doubt these lowly plants are subject to the general laws which govern natural selection, and no doubt modifications may occur in their physiological characters as a result of the continuous action of these laws. Whether such modifications resulting from changes in environment —nature of pabulum, temperature, influence of associated organisms, etc.—may be induced within a comparatively brief period of time, and whether physiological, and morphological characters are more or less constant than is the case among higher plants, is a question of prime importance from many points of view.

Owing to the very rapid multiplication which occurs under favorable circumstances, a single micrococcus within a few days becomes the parent of innumerable successive generations; whereas one of the higher plants, which produces seed but once a year, would require a very extended period of time to produce a similar series. If the micrococcus is equally subject to modifying influences, it is evident that the time required to establish a variety may be very much less than among higher plants. This suggests the possibility that pathogenic varieties may be developed from usually harmless organisms as a result of exceptional circumstances.

There are certain pathogenic organisms—*e. g.*, the tubercle bacillus, and the spirillum of relapsing fever —which, there is reason to believe, are at present restricted to a parasitic mode of existence—*i. e.*, the conditions necessary for their propagation do not exist in nature external to the bodies of living animals. But we must admit that these parasites are the direct descendants of organisms which at one time were able to exist independently of a living host, or we are reduced to the necessity of assuming that the parasites came into existence with their present characters subsequently to the host which is at present necessary for their continued existence, and apparently for no other purpose than to produce the specific diseases which have been demonstrated to be due to their presence. But, while we can scarcely doubt that at some time in the past these and other parasitic organisms which give rise to specific infectious diseases originated from microörganisms capable of leading an independent existence, it does not follow that the development of specific pathogenic power, associated with an exclusively parasitic mode of existence, is an event of every-day occurrence.

No one at the present day believes in the *de novo* origin of the specific eruptive fevers, but there are still a few physicians who maintain that cholera, and yellow fever, and relapsing fever may occur, outside of the region of endemic prevalence, as a result of local conditions, and quite independently of the importation of infectious material. This view was formerly held by a majority of the profession, but the progress of knowledge, and more exact methods of observation, make it appear quite certain that, however these diseases may have originated in the first instance, their prevalence in a new locality at the present day depends primarily upon the introduction of a living germ from a foreign source, and secondarily upon local conditions favorable to the development of this particular pathogenic organism.

Is this also true as regards the so-called hospital diseases, erysipelas, septicæmia, puerperal fever, hospital gangrene? We have abundant evidence that these diseases are propagated from case to case by inoculation with infectious material conveyed upon sponges, instruments, the hands of attendants, etc. But how about the first cases in new hospitals, or what shall we say of the isolated cases of puerperal fever, septicæmia, and erysipelas which occur in localties remote from any apparent source of infection? We may suppose (*a*) that in these cases also the puerperal woman or the individual suffering from a compound fracture, although far removed from any recognized case of puerperal fever or of septicæmia, has been infected by material transferred through some unknown channel to the genital tract or to the suppurating wound; or we may suppose (*b*) that some one of the organisms constantly or occasionally found in the secretions of the vagina, or in the purulent discharge from an open wound, has developed pathogenic power in the abundant pabulum furnished by these secretions, and has been able to overcome the vital resisting power of the tissues, and thus to produce general blood infection, or local

inflammatory and necrotic changes: or, finally, we may suppose (*c*) that the pathogenic organisms which give rise to the diseases named are widely distributed, and always at hand ready to produce their specific effects when the puerperal woman or wounded individual is vulnerable, by reason of reduced resisting power resulting from loss of blood, profuse suppuration, or *poisoning by the chemical products of putrefactive decomposition.*

It would be premature to attempt to decide which of these suppositions is correct, and the writer must content himself at present with a simple statement of the question. It may be remarked, however, that the experimental evidence available gives some support to each of the hypotheses suggested. Thus the various pathogenic organisms now in cultivation in the laboratories of bacteriologists seem to retain their specific pathogenic properties through any number of successive cultures, and there is no satisfactory experimental evidence to show that a harmless microorganism may by special treatment develop pathogenic power. On the other hand, we have evidence that notable differences in pathogenic power, of a more or less permanent character, may be obtained by special methods of treatment. Thus, Pasteur has in constant cultivation in his laboratory three distinct pathogenic varieties of the anthrax bacillus, unattenuated, *premier vaccin*, and *deuxième vaccin*.

The question whether differences in the color of pigment produced, or in pathogenic power, or in temperature most favorable to development, or in mode of growth in culture media, can be accepted as distinguishing *specific* characters, in the botanical sense of the word, is one which I am not disposed to discuss. From a practical point of view, it is a matter of secondary importance. The main object of bacteriologists at present should be to make themselves familiar with the bacterial parasites which infest the bodies of man and the lower animals in health and in disease, and with the bacterial flora of stagnant water, putrefying infusions, etc.; to differentiate species or *varieties* which, by Koch's admirable methods, can be distinguished one from the other, and carefully record the differences which may be observed in their mode of growth, color, pathogenic power, and other physiological characters, together with the morphology of their life-cycle. The botanical questions as to near or remote relationship may well be left for the future, if, indeed, they are capable of being solved at all.

(*To be concluded.*)

EXTIRPATION OF INGUINAL GLANDS.

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In a recent paper by the writer ("Venereal Bubo," etc., The Medical News, Dec. 5, 1885), the advisability of extirpating the inguinal glands, with a view to shorten the duration of treatment for venereal bubo, was referred to and condemned as a general procedure, for the reasons of possible injury to important adjacent vessels or of the burrowing or absorption of pus or septic matter, with septicæmia in consequence. Since writing this paper, two papers have appeared reporting disastrous results from the operation. One, by Dr. W. B. Platt, F.R.C.S. ("Gangrene of the Scrotum following Excision of the Inguinal Glands: an Acute Reflex Trophic Lesion," The Medical News, Nov. 14, 1885), narrating three cases, in each of which gangrene of a small portion of the skin of the scrotum occurred a few days after the operation, and due, in the author's opinion, to irritation of the ileo-inguinal or genito-crural nerve. Drs. Randolph Winslow and Wm. J. Jones ("Note on Occurrence of Gangrene of Scrotum," etc., *Annals of Surgery*, Jan. 1886) report four cases—Case II. being Case I. in Dr. Platt's paper, and Case IV. being Case II.—of gangrene of the scrotum following extirpation of the inguinal glands. These authors consider that "different factors may have been operative in the individual cases;" but whether the gangrene "was due to obstruction of the venous circulation, or to trophic nerve lesion, as is held by Dr. Platt, is not clear."

All of these cases occurred in the Bay View Hospital, Baltimore, except the first of Dr. Platt's, which occurred in the Boston City Hospital. In this latter case, an indurated lump was felt on the preputial margin: a reference might here be made to the probability of this being the result of a hard chancre, particularly as the glands had been indurated for two years, and the tendency to gangrene in syphilitic cases is not infrequent; even recently, as eminent a syphilographer as Jonathan Hutchinson has ventured the sweeping suggestion that all cases of hospital gangrene are due to syphilitic phagedæna ("Lettsomian Lectures: Some Moot Points in the Natural History of Syphilis," *British Med. Journal*, Jan. 9, 1886). Of the cases at Bay View Hospital, in one erysipelas was in the ward at the same time. All the operations were carefully performed with antiseptic precautions.

Neither of the papers gives statistics of uncomplicated operations; and if the theory of trophic reflex lesion be accepted, gangrene of the scrotum should, in the majority of cases at least, follow extirpation of the inguinal glands.

The following uncomplicated cases of this operation are reported as a contribution to the study of the subject:

Case I.—J. S., white, male, aged twenty-three; admitted to the U. S. Marine Hospital, Memphis, for a large indurated bubo of the left groin, which had been developing for some weeks. Denied recent gonorrhœa or venereal sore. August 14, 1885, he was anæsthetized, the groin washed with a four per cent. bichloride of mercury solution, an incision made in the skin parallel with the fold of the groin, and the gland torn out with the fingers. A few small bleeding points were closed by torsion. As the wound was deep and promised to favor the secretion of pus, no sutures were introduced. The groin was washed out every other day with a warm bichloride solution, iodoform dressing applied, and healing by granulation progressed favorably, the patient being discharged September 1st. The removed gland was filled with small foci of pus.

Case II.—J. P., aged nineteen, negro, had a venereal sore in August, 1885. About September 15th, swelling of the right inguinal glands commenced. September 22d, the prepuce was slit on account of extensive condyloma, and the glandular mass was removed from the groin. The procedure was identical with that detailed above, except the use of sutures to close the wound. A troublesome hemorrhage occurred a few hours after recovery from anæsthesia, necessitating the removal of the sutures and exposing the wound to air and hot washing. October 1st, a secondary macular eruption appeared. This detained him in the hospital some days longer than the wound required. Discharged October 14th.

Case III.—C. H., mulatto, aged twenty-three, admitted to the hospital for enlargement of the glands of each groin. The patient claimed he had never had venereal disease, and a careful examination failed to show any evidence of a cicatrix on the penis, nor was there evidence of tuberculosis. The glandular mass was injected first with cocaine solution, and then with a ten per cent. carbolic acid solution. This was done twice within four days. As fluctuation was detected, a few days later, in the mass in the right groin, it was locally anæsthetized and lanced, a small quantity of pus escaping. Instead of diminishing, the mass increased in size and induration; and two rupia like sores appeared, one on the right forehead and one on the right wrist. The patient was anæsthetized, an incision six inches long made in the right groin, and the mass dissected and torn out; the wound being large and deep; no sutures were introduced. The glandular mass in the left groin was removed at the same time, and the wound sutured. Although there was no evidence of any bleeding point in the right groin when the wound was dressed, a few hours later the dressing had to be removed for a considerable hemorrhage. The wounds were washed out every other day, dressed with iodoform or boracic acid, and an uncomplicated healing by granulation followed. The patient was discharged, recovered, one month after the operation. Examination of the mass removed from the right groin showed that a deep gland was filled with pus pockets, and the incision had failed to reach them. The mass from the left groin was simply enlarged.

In the last two operations there was a strong probability of lesion of the nerve. And as gangrene of the scrotum has not been reported as a sequence of operations for the radical cure of hernia, operations on strangulated inguinal hernia, or other operative procedures in the region of the inguinal canal; and in consideration of the generous nerve supply of the scrotum, it does not seem that the theory of trophic nerve lesion is well founded.

I think the evidence of the cases reported by these writers supports my surmise regarding the danger in this operation of a consequent septicæmia, confined to the scrotum in their cases. Nor is my success any evidence of superior surgery, but due rather to an absence of the "individual factor" referred to by Drs. Winslow and Jones.

Memphis, March 8, 1886.

25*

MEDICAL PROGRESS.

Feeding-bottle for Use in Cases of Intubation of the Larynx.—At a recent meeting of the Chicago Gynecological Society, Professor F. E. Waxham presented a feeding-bottle, which is thus described: The bottle consists of an ordinary nursing flask, with a rubber cork, in which is a small vent through which a tube passes to the bottom of the bottle. To this tube is attached another leading to the bulb of a Davidson's syringe, and this in turn is attached to a small-sized œsophageal tube. In using this apparatus the gag is placed between the jaws, the tube introduced into the œsophagus, and the contents of the bottle quickly introduced by means of the bulb.

Many patients, especially young infants, do not take sufficient nourishment after intubation has been performed, on account of the coughing produced by the trickling of the liquid into the trachea. This apparatus obviates the difficulty.—*Chicago Medical Journal and Examiner*, April, 1886.

The Value of Certain Isolated Symptoms in the Diagnosis of many of the Diseases of Children.—Politzer, in an essay thus entitled, expressly disclaims any attempt at systematic arrangement of the following symptoms, to which he calls attention in his paper. His forty years of experience, and prominent identification with the public Institute for Sick Children at Vienna, entitle his words to careful consideration.

1. One which is likely to attract attention at once, is a strongly pronounced nasal or palatal resonance in a child's cry, and this is, in many cases, the first symptom which should lead to a timely diagnosis of retropharyngeal abscess. The symptom is present, however, in some other affections; for example, in the ozæna of congenital syphilis, and in hypertrophy of the tonsils.

2. A greatly prolonged and loud sounding expiratory act, with normal inspiration and complete absence of asphyxia. Upon this symptom alone the author is willing to base a diagnosis of chorea major.

3. A sighing inspiration, which is continuous, and seems to originate from the upper portion of the thorax. It has not been sufficiently considered by the profession, bearing in mind its importance with reference to diagnosis, and prognosis, and also to treatment. It indicates the beginning of heart weakness and paralysis, and sometimes a developing acute fatty degeneration of the heart.

4. A strongly pronounced diaphragmatic expiratory act, shrill and penetrating in character. This is spoken of as strongly contrasted to the preceding symptom, but equally valuable in diagnosticating the bronchial asthma of childhood.

5. The occurrence of pauses between the end of expiration, and recurring inspiration. This might be taken as a symptom of croup, but in most cases the probabilities are more favorable to the presence of laryngeal catarrh of a pronounced type. Associated with this symptom as an important condition is the spasmodic catarrhal stenosis, with its accompanying submucous œdema.

6. Continuous stridulous respiration from the time of birth. This is not unfrequently seen, but is often without important significance, and is supposed by the author

to be due to some fault of innervation, especially with respect to the inhibitory fibres of the vagus.

7. A series of individual symptoms is next referred to, which have reference mainly to the diagnosis of diseases of the brain. The first of these is a very pronounced drowsiness, which is unattended by fever or any other noticeable disturbance, and which lasts some time. When occurring in children who are pale, unusually quiet, and apathetic, it is very often an initial symptom of basilar meningitis. A second symptom of this series is a resistant and non-compressible anterior fontanelle, which is considerably elevated above its ordinary level. It is an important and too little appreciated symptom, for it is present in cerebro-spinal, and tubercular meningitis, in acute, simple, and complicating hydrocephalus, with tumors of the brain, and an intrameningeal apoplexy of infants. It is a noteworthy symptom, too, in fevers. and in various inflammatory conditions, but its especial value consists in its indicating that there is independent disease of the brain aside from any other concurrent processes. The deeply depressed anterior fontanelle, with which is almost always associated a sunken condition of the eyeballs, is indicative of inanition, and diminution of the volume of the blood. The third symptom of this series consists in a remarkably slow movement of the eyeballs, a staring, vacant expression, and slow, infrequent moving of the lids. It is considered by the author as an important indication of the beginning of basilar meningitis.

8. Another series of symptoms may also be noted with advantage in respect to the crying of children. The first of these is a violent, penetrating cry, lasting two or three minutes, accompanied with a most anxious expression of countenance, and occurring an hour or an hour and a half after the child has gone to sleep. It is an indication of what is commonly known as "night terrors," and is very apt to occur among anæmic and irritable children. Again, there is a cry which lasts five or ten minutes, which comes periodically both by day and by night, and may indicate colic or dyspepsia, but it is more likely to be caused by spasmodic action of the bladder, especially if it be observed that strangury accompanies it. Another cry seems to be associated with fear whenever the act of defecation takes place. In such cases obstinate constipation is very likely to be present, and fissure of the anus will often be found to be a sufficient cause. Another severe, painful, continuous cry, with restlessness of the head upon the pillow, and frequent grasping of the head serves to indicate an otalgia, or an *otitis externa* and *media*. Another variety lasts for days and weeks, is aggravated by touching and movements of the limbs, and is associated with paroxysms of sweating and fever. The author looks upon this as indication of acute general rachitis. Still another cry is associated with constant sleeplessness. This may be one of the phenomena of congenital syphilis; but it is more likely to proceed from errors in diet, and in still other cases it is due to the viciousness of nurses. Finally, there is a form of cry which is kept up day and night, which is associated with a history of exhausting discharges, and consequent thickening of the blood.

9. A final series of symptoms includes some which are not noticed by the parents of the child, or not as early as would be desirable for the child's interest. First is mentioned the peculiar physiognomy of congenital syphilis. Second is a decided falling together of the nostrils, with total absence of motion in them during inspiration, and significant narrowing of the nasal cavities. This is an indication of hypertrophy of the tonsils of a decided type. Next, a disinclination or inability to move, on the part of certain children, is referred to, which is associated with pronounced weakness, and which is out of proportion to the apparent gravity of the child's disease. The symptoms indicate, however, an approaching or existing spinal paralysis. Weakened power of hearing sometimes indicates the presence of circumscribed meningitis. Depression of the psychical activity after certain brain affections, in small children, may be an indication of the beginning of acquired idiocy. An indication of rachitis is sometimes seen in the delayed ossification of the cranial bones. An anxious, awkward posturing in walking, sitting, rising, and bending, and, in those who cannot walk, a painful contracting of the facial muscles, are said to be valuable signs of the beginning of spondylitis. A constant vomiting, lasting for several weeks, occurring in children with closed fontanelles, and large cranial circumference, indicates a chronic hydrocephalus which has taken on an acute form. Finally, an attack of convulsions may occur, which is the primary indication that the child has epilepsy. In such a case it is important to know as many symptoms as possible, before rendering a positive diagnosis; hence all the points in relation to the convulsions should be taken into consideration before a diagnosis of epilepsy is given.—*Australian Medical Journal*, March 15, 1886.

Partial Regeneration of the Kidney.—Recent experiments made by E. di Mattei tend to show that, in opposition to the prevailing opinion, the reproduction of lost parts of the kidney and the compensatory hypertrophy observed after unilateral nephrectomy are due more to the active proliferation of renal epithelium than to connective tissue increase.

The observations were made upon kidneys which had been incised or in part broken up with needles, the animals (dogs and rabbits) being killed, and the kidneys removed at various lengths of time after the operation. There was observed, even in the first few days after the application of the initial irritation, a distinct and active proliferation of the morphological constituents of the renal parenchyma, the phenomena being most marked in the cells of the uriniferous tubules. The reproductive activity was often manifested in the cells distant from the seat of injury.—*Centralb. f. Chirurgie*, May 15, 1886.

Treatment of Delirium Tremens.—Dujardin-Beaumetz, following the example of Luton, advises the hypodermatic injection of one-thirteenth grain of sulphate of strychnine in alcoholic delirium. The injection is repeated at the expiration of five hours; and, if the symptoms still persist, a third injection is administered at the end of twenty-four hours. He maintains the existence of an absolute and reciprocal antagonism between the toxic effects of strychnia and alcohol. It is, however, of course impossible that strychnia should relieve the grave visceral alterations induced by chronic alcoholism.—*L'Union Médicale*, April 25, 1886.

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SURGICAL TUBERCULOSIS.

By surgical tuberculosis is meant those forms of tuberculosis which attack organs amenable to surgical treatment, as contrasted with tuberculosis of internal organs. The latter has been more or less well defined since the times of Laennec; the former may be said to be a development of the idea of Nélaton, published in his inaugural thesis in 1836. Since his time a number of surgeons have added to our knowledge of this subject, the most conspicuous names among them being those of VOLKMANN, GOSSELIN, KRASKE, KÖNIG, and OLLIER. Of these, Volkmann is probably the one who has done most to enlarge the field of surgical tuberculosis, which now includes a very large area. In a recent paper in the *Archiv f. klinische Chirurgie*, Bd. xxxiii. Heft i., he has given a most interesting and instructive summary of his views in regard to this subject. The first class of tuberculous affections which he considers are those of the skin and subcutaneous tissue, and include lupus, ulcers, and the rarer forms of primary tuberculosis and tuberculous abscesses of the intermuscular, parossal, and para-articular tissues. The latter must not be confounded with the secondary developments which proceed from a primary affection of a bone, a joint, or a lymphatic gland. Foci of this sort may be very small and escape detection, especially as they may have healed before the secondary manifestation has attracted attention. The curability of such small foci is indicated by the fact that Volkmann has secured healing by first intention in twenty-three out of fifty-seven cases which he treated by free incision, antiseptic washing, drainage for a few days, and compression of the walls. Especial stress is laid upon the presence of a distinct membrane in true tuberculous abscesses, the absence of which Volkmann has observed in only two out of more than a thousand cases. Diffusion of a caseous mass through the adjacent tissues is characteristic of syphilis or actinomycosis, as distinguished from tuberculosis.

The second class of tuberculous affections considered by Volkmann includes those of the accessible mucous membranes. Tuberculosis of the tongue has, in the majority of his cases, been followed by pulmonary tuberculosis and death, although a few after operation remained healthy for years, even when they belonged to families in which the hereditary tendency was well marked. Tuberculosis of the fauces and soft palate he has seen almost exclusively about the time of puberty, and thinks it may easily be mistaken for hereditary syphilis. But extensive adhesions of the scarred soft palate, shutting off the pharynx from the nasal cavity or closing the pharynx itself, are more frequently due to healed tuberculous ulcers than to syphilitic ulcers, which are characterized by deep loss of substance rather than by comparatively superficial ulceration which favors subsequent adhesions. There is also a tuberculous form of ozæna, which is not common, and one dependent upon tuberculous disease of the bones of the nose. Volkmann has twice seen grave tuberculous ulceration of the lip. The relation of tuberculosis to fistula in ano is indicated by the constant association of the latter with phthisis, upon which all surgeons have long dwelt. The tuberculous fistula differs from the non-specific in that the former is characterized by a tendency to the formation of massses of fungous granulations, extensive separation of the mucous membrane, undermining of the skin, and the formation of sinuous abscesses.

An analogue of tuberculous anal fistula is seen in the rare cases of perityphlitis which are dependent upon perforation of the bowel by a solitary ulcer, and which have the same characteristics as the tuberculous anal fistula.

Volkmann's third class of tuberculous surgical affections includes those of the genito-urinary apparatus. Tuberculosis of the testicle is commonest in youth or in middle life, but it occurs also in old age. It is important to remove totally a tuberculous testicle, as the surest means of preventing secondary infection, though this is not so important in slowly progressing cases in old men as it is in younger individuals. Tuberculosis of the bladder, ureters, and kidneys is one of the most typical and grave forms of tuberculosis, and it is doubtful if nephrotomy or nephrectomy is of real benefit to patients affected with tuberculosis of the kidney or of its pelvis. Tuberculosis of the vagina and uterus Volkmann has not encountered, but thinks gynecolo-

gists may have some experience in this line. Tuberculosis of the mamma is very rare, and its diagnosis only possible in the later stages. It should be treated by amputation of the breast and cleaning out the glands in the axilla. It is important to bear in mind that a non-tuberculous chronic indurative mastitis may lead to lymphatic enlargements in the axilla which subsequently become tuberculous.

The fourth class of surgical tuberculosis is that of the bones, joints, and sheaths of tendons. Every lesion which was formerly called caries, pædarthrocæ, spina ventosa, scrofulous inflammation of the bones and joints, white swelling, fungus of the joints, strumous affection of the joints, and, recently, fungous inflammation of the bones and joints, is, with exceptions which constantly grow rarer, to be regarded as true tuberculosis. From infectious osteomyelitis and metastatic inflammation of the joints after acute exanthemata, the tuberculous process is distinguished by the acute onset of the former. At the same time it is a matter for investigation how much of the suppurative and destructive inflammation which follows the exanthemata is due to the specific virus of the exanthema. Another important question is, To what extent is it possible for a joint inflammation which was not originally tuberculous to become so?

In speaking of the treatment of tuberculous joint affections, Volkmann rejects parenchymatous injections, and puncturing and washing out the joint. The proper treatment is: *a*. Arthrotomy—incision and drainage, with or without scraping with the sharp spoon; *b*. Synovial arthrectomy—total extirpation of the capsule of the joint; *c*. Bony and synovial arthrectomy, in which as much of the bone is removed as may seem advisable. In this connection, Volkmann calls attention to the fact that the sharp spoon is not so efficient an instrument for the removal of the tuberculous infiltrate of a synovial membrane as it is for that of the parts around a joint or of a bone itself.

The tuberculous affections of the bones are spina ventosa, necrosis of the orbital plate of the superior maxilla, cold abscesses of the skull, tuberculous caries of the ribs, and the ordinary form of spondylitis or Pott's disease. In this connection, Volkmann calls attention to the diagnostic point that tuberculosis rarely attacks the shaft of the long bones in adults. After operations on the bones and joints, the wound often becomes again tuberculous before healing completely; in which case it must be treated promptly, energetically, and repeatedly, even four, six, or more operations being undertaken in the space of a few weeks, if necessary. Occasionally it seems as if an operation led to a generalized acute miliary tuberculosis, by affording the tuberculous virus a means of entrance into the circulation. On the other hand, as it is well known that even the gravest cases of white swelling, arthrocacæ, Pott's disease, and spina ventosa may terminate in spontaneous recovery, and as these are now considered to be forms of tuberculosis, it is not to be denied that tuberculosis may end in spontaneous recovery.

Lymphatic glands may be the seat of primary or secondary tuberculosis, and require enucleation. But one of the most important features in connection with the part they play in tuberculosis is their power of filtration, by means of which they often stop the dissemination of the tuberculous virus, and sometimes seem actually to destroy it. On the other hand, the diffusion of the process is generally assured by the entrance of the virus into a serous cavity, into a mucous membrane, or into the blood current. Anatomical peculiarities, therefore, of the bones, joints, skin, connective tissue, and lymphatic glands make tuberculosis of these structures less dangerous than that of the respiratory or intestinal tract. Again, the susceptibility of different individuals to tuberculosis varies, and so does that of the same individual at different times. Tuberculosis may recur on account of the tendency of the individual, but early local recurrence is due to the fact that the operation was not thorough. This accident never occurs after amputation in perfectly healthy tissue; nor has Volkmann ever seen fungous degeneration of an accidental or surgical wound in a tuberculous or scrofulous individual. Notwithstanding this fact, the great majority of tuberculous affections of the bones and joints are to be referred to a traumatism, and to a slight, rather than a severe one. This may be explained by the fact that the energy of the reactive process after a severe traumatism is unpropitious to the development of the germ of tuberculosis. The prognosis of tuberculosis is best in children, and becomes worse about the period of puberty. For this reason, conservative measures are more appropriate before this time than after it.

In commenting upon this summary of Volkmann's paper, we have only space to refer to the sensible remarks of Ollier, in his work *On Resections and Amputations in the Tuberculous*, that "there is a serious tuberculosis and a benign tuberculosis; there is a generalized tuberculosis and a localized tuberculosis; there is a tuberculosis which inevitably progresses, there is another which tends to stop of itself. The one develops like an infectious and fatal disease; the other produces serious local destruction; but has not, at a certain stage of its evolution at least, the invading course, and remains for a long time limited to the point originally effected. Experimental analysis may some day show us what clinical analysis has already led us to suspect—that is to say, affections of different nature among those which we now group together under the name of tuberculosis. It

is probable that we confound under the name different pyogenic affections."

PUBLIC AND HOUSE SANITATION.

DURING some recent discussions on public health in this city there seemed to be a disposition to ascribe an undue share of the mortality from typhoid fever to the water of the Schuylkill River. Admitting that the Schuylkill is but a drain, and that its water is polluted to a degree that it is, in the judgment of many, no longer limpid or potable, yet, in view of other existing conditions, it is doubtful whether the great mortality from typhoid disease can be wholly attributed to polluted water taken into the stomach.

If there were 600 deaths in this city last year from typhoid alone, as has been stated, it may be correctly assumed that 3000 cases of this disease occurred during the same period. These figures present only a fraction of the disease and mortality due to zymotic causes, all of which are conceded to be preventable. It seems to be erroneous and calculated to mislead, to ascribe all of this disease and mortality to the water of the Schuylkill. We have taken occasion, from time to time, to point out in these columns other sources of disease, some of them existing in and about dwelling-houses, to which a large proportion of it may be correctly attributed. We refer again to the continued use of polluted wells for drinking purposes; pits or cesspools in the cellars of dwelling-houses to receive sewage; closets of defective and imperfect construction still in use and furnished by plumbers; the omission to provide for the ventilation of soil-pipes, which may be done by extending the pipe, or making an opening, to allow the escape of noxious gases into the external atmosphere; the discharge of sewer-gas into dwellings from corrosions and defective joints of soil-pipes, and the use of untrapped and imperfectly trapped waste-pipes. We ought to mention another source of atmospheric deterioration from the escape of sewer-gas into dwellings through traps, the seal of which is broken from infrequent use, inadequate supply of water, evaporation during disuse, and siphonal action. There is, also, great danger in remaining in a house which has been closed long enough to allow the water in the trap to evaporate. Cases have come to our knowledge where families have returned to city homes which had been closed, and charged the malarious illness with which they subsequently suffered to residence in the country in unexceptionable localities, but which, in reality, was induced by sewer-air, introduced through the means we have indicated. A very slight discharge of water, or the replenishing of the traps from time to time, would obviate danger from this source.

The city sewers are dark, closed conduits containing sewage, water of an elevated temperature, and perhaps steam, under conditions favorable to the generation of mephitic gases. The city inlets receive the discharge from surface house-drains and street-washings, and are often in a wretched state, in dangerous proximity to air-ducts supplying air to house heaters. No special provision exists for the escape of gases generated in the sewers, and any accumulation must find an outlet through house-drains into dwellings, unless some harmless vent is provided. It would seem that no more effectual method could be devised for the generation and introduction of noxious gases than exists even now in thousands of houses of this city! Every system of sewage, without high ventilating shafts containing fires, or some other equally effective method for insuring a strong upward draft, is a constant menace to the public health.

Municipal legislation may and ought to remove all existing abuses; and provide that all house sanitary arrangements should hereafter conform to rules and principles established by experience, and that qualified plumbers should be licensed and registered. Householders should be impressed with the importance of adopting the best sanitary appliances, with the fact that polluted air may become as dangerous to health as polluted water, and with the danger that threatens them from ignorance and indifference to unsanitary conditions on the part of the public authorities.

OPERATIONS FOR STONE IN THE BLADDER.

SINCE the first establishment of the improvements in the operation of lithotrity introduced by Prof. Bigelow, there has been a slight reaction caused by the recognition of the fact that this method is practically applicable only to calculi of moderate size, and that it requires a degree of skill and experience on the part of the operator which cannot always be found. The consequence has been a more frequent return to cutting operations than was expected in view of the earliest achievements of litholapaxy. This has led to renewed discussion as to the best method of lithotomy. Setting aside the preferences of individual surgeons, it may be stated that the general opinion now is that for small stones, and for stones in small children, an operation through the perineum leaves little to be desired in the way of safety and completeness. For large stones and for those in which there is some unusual difficulty in approaching the bladder through the perineum, the suprapubic operation is much to be preferred. The old arguments of ease of access to the bladder and facility of detecting and removing a stone still stand. The only serious question in regard to the operation concerns its dangers. These it does not do for any partisan to underrate.

They are real, and the adoption of the method is not yet general enough for any great change to have been made in the apparent ratio of mortality. This is, no doubt, due to the fact that even yet—and especially since the prevalence of the operation of litholapaxy—the cases in which the operation is done are the cases in which the danger of a bad result is greatest, and it is not fair to compare the death-rate of this method with that of any other for which the most favorable cases are reserved.

In a recent discussion before the Fifteenth Congress of German Surgeons, reported in the *Wiener medicinische Presse* for May 16, 1886, the merits of the different methods of lithotomy were very thoroughly discussed, the discussion occupying two whole afternoon sessions of that body. Its outcome was about what we have stated above, with the additional opinion that the median operation is to be preferred to the lateral in all cases in which an operation through the perineum is desirable. The question of the advisability of suturing the bladder after suprapubic lithotomy was discussed, but by no means settled. From the present state of knowledge in regard to this feature of the operation, it appears that the circumstances of each case must determine the manner of treating the operation wound after suprapubic lithotomy. Where it may be comparatively easy to close the bladder accurately, and where this organ is not much diseased, careful suturing, without including the mucous coat, promises good and speedy recovery. Where it is difficult to sew up the wound, or where the bladder is much diseased, the wound may be partly closed, and a single or double drainage tube left in the bladder. In many cases it has seemed wise to let the wound absolutely alone, doing nothing besides keeping it clean and watching against accident. Indeed, as good results have been attained in this way as by the most careful closing of the bladder, and in one of these ways we think as good results are to be obtained, in cases equally favorable, by the suprapubic method of lithotomy as by any other.

QUARANTINE INSPECTION AND THE REVENUE MARINE.

WHILST no special danger of the introduction of epidemic disease from abroad exists at the present time, the U. S. Marine-Hospital Service has determined to reëstablish an inspection service along the Atlantic seaboard and Gulf coast as a measure of precaution. Accordingly, on the first of the month a patrol of the coast of the United States by the Revenue Marine was ordered, under regulations similar to those issued last summer. Incoming vessels are to be intercepted, and if sickness is found on board or if the vessel is in a foul condition, she will be directed to proceed to quarantine, and the proper quarantine officials notified.

The favorable reports from abroad should not slacken the rigidity of protective measures, as dangers may approach when least expected, and, therefore, the President has wisely concluded to use the powers vested in him by Congress, in giving additional protection to the weak points along the coast by utilizing the services of the Revenue Marine.

It must be admitted that the arrangements as yet lack thoroughness and completeness, and, where local quarantines already exist, impose additional burdens upon commerce which would be unjustifiable did the local authorities, in all cases, provide ample measures of protection. But the service is only provisional, and must yield in time to uniform and concerted action, and the adoption of adequate regulations at all the seaports of the country.

SOCIETY PROCEEDINGS.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Eighth Annual Session, held in the Hall of the College of Physicians of Philadelphia, May 27, 28, and 29, 1886.

THIRD DAY, SATURDAY, MAY 29.—MORNING SESSION.

A paper, by DR. S. SOLIS COHEN, of Philadelphia, on *A Case of Hysterical Sneezing apparently Cured by Applications to the Nasal Passages of the Continuous Battery Current*, was read by title.

DR. JOHN N. MACKENZIE, of Baltimore, presented

A CONTRIBUTION TO THE PATHOLOGY AND TREATMENT OF THE RESPIRATORY VASOMOTOR NEUROSES.

His main conclusions are as follows:

1. The nasobronchial tract is, together with its appendages and connections, frequently the seat of certain periodic vascular disturbances in which paroxysmal explosions of nervous force play an important part, and which depend, it is reasonable to assume, upon a true sympathetic or vasomotor nerve irritation.

2. The tract may be affected in its entirety, or the phenomena be localized in its individual segments. In the latter case, the nasal cavities and bronchial membranes are most frequently the areas upon which the nervous shock is expended, the two territories being seemingly held in close relationship by virtue of a physiological law of sympathy between the two extremities of a mucous tract. In the one case a sympathetic coryza results, in the other a sympathetic bronchitis.

3. In the solution of these phenomena two factors are conspicuously concerned—a depraved condition of the nerve centres, and an abnormal excitability of certain portions of the nasobronchial tract.

4. The derangement of the nervous apparatus may be inherited or acquired. In the latter case it may be occasioned by (1) prolonged irritation of the respiratory membrane by various pathological conditions, leading to constant irritation of the nerve centres; (2) by constant wear and tear of the general nervous system from a multitude of causes. Here the area in which the reflexes are manifested will depend upon the seat of the local pathological process—on the localization of

the area of peripheral irritability. A polypus in the nose, for example, will elicit reflex disturbances referable to the respiratory system, while a similar growth in the rectum will excite symptoms referable to the lower bowel. (3) In another class of cases the excessive irritability of the nerve centres may find its predisposing cause in pathological states of the system as a whole (*e. g.*, diathetic condition), or as the result of reflected irritation from individual parts of the body. After the elaboration of these propositions, Dr. Mackenzie called attention to the occasional remarkable behavior of the respiratory neuroses under the influence of certain acute diseases, having observed the whole group—coryza, asthma, etc.—disappear during an attack of rheumatism, and also the recurrence of the nasal affection and asthma during an attack of measles, after a prolonged interregnum of immunity. Dr. Mackenzie next passed to the discussion of the peculiar hyperæsthesia under consideration. The existing confusion in regard to this point is due to failure to separate the hyperæsthesia naturally associated with the local pathological process and the excessive irritability principally met with during the paroxysm. According to his belief, the latter is, like the vasomotor phenomena which accompany it, a purely secondary phenomenon, and may be brought about (1) by a direct impression made on the nerve filaments of the respiratory membrane, (2) by an indirect influence conveyed through the vasomotor centres, or (3) from an excitation starting in the nerves themselves.

The hyperæsthesia may be general or localized in individual portions of the tract. In either case, while all portions may share in the general hyperæsthesia, there are certain areas, chiefly localized in the lower and posterior portions of the different segments, in which it is more prominent, in which a greater susceptibility to reflex-producing impressions is discoverable, and in which may be best studied the vasomotor manifestations of this special class of neurosis. There are, in the nasal passages, the posterior end of the inferior turbinated body and septum immediately opposite (nasal reflex sensitive area); in the pharynx, the vault and posterior wall; in the larynx, the posterior commissure; in the trachea, active areas along its posterior wall, and so on.

In addition to the arguments already advanced by Dr. Mackenzie in defence of the sympathetic vasomotor origin of these affections in a series of publications on the subject (see especially, *N. Y. Med. Record*, July 19, and Oct. 18, 1884; *Maryland Medical Journal*, April 11, 1885; *Trans. Med.-Chir. Fac. of Maryland*, 1885; *Amer. Journ. of Med. Sci.*, Oct. 1885, pp. 511 *et seq.*, and January, 1886; *Trans. Am. Laryng. Assoc.*, 1884, p. 113, etc.), he called attention to a hitherto undescribed neurosis of the aural apparatus—a sort of "hay fever" of the ear—which he had observed and which supported the doctrine of the sympathetic origin of the affection. He also reported two other observations of interest in view of the probable vasomotor nature of the disease commonly known as "hay fever," viz., the occasional enlargement of the thyroid gland and an enormously swollen and encysted condition of the auricles analogous to that of the rabbit's ear in the experiment of Bernard on the cervical sympathetic.

Dr. Mackenzie next passed to the relation of nasal disease to asthma, quoting from the writings of Aurelian, Zecchius, Schneider, Flower, Josef Frank, Bree, Forbes, Trousseau, and Duplay, to show that the relationship was familiar long before the observations of Voltolini. Our notions of asthma are still indeterminate. It is regarded as a distinct pathological entity; but if we consider exactly what is involved in the ordinary conception of the term—that, like many other disturbances of respiration, it has no definite anatomical lesion, that it is common to a number of pathological states, we shall be forced to regard *asthma as a symptom*, which, like cough, may occur in connection with irritation in various parts of the body, but which is commonly symptomatic of some disorder of the respiratory tract.

The association of asthma, coryza, and urticaria was next discussed at length. Fr. Hoffmann was familiar with the relationship of asthma and urticaria, and before him Bazlivi had recommended, in such an event, that the patient sleep with one having the "scabies," that, catching it, he might be relieved of his asthma. William of Orange was cured of an asthma during the running of a sore produced by the famous cannon-ball wound received at the Battle of the Boyne. The coryza may precede the asthma and urticaria, disappearing or remaining after their eruption, or the asthma and urticaria may antedate the coryza, or, finally, the three may appear simultaneously. They seemingly depend upon the imperfectly defined neurosis or vasomotor influence which is probably the connecting link between the three affections. The skin may be regarded as the external organ of respiration, and while the relation of asthma and coryza may be explicable by a possibly normal sympathy between the two extremities of the internal respiratory tract, both asthma and coryza may be linked to the skin affection by a sympathetic bond, which holds in equilibrium and close consent the whole mechanism of the respiratory function. The vasomotor manifestations, as they occur in the pharynx and larynx, were discussed at length, together with the reflex phenomena accompanying them.

Dr. Mackenzie bases his treatment upon the principles involved in the above propositions and upon the generalization announced by him some time ago (see *Maryland Medical Journal*, April 11, 1885) that the group of phenomena known as "hay fever," asthma, and other reflex phenomena found in connection with nasal disease may be classed as symptoms, which owing their origin to a common cause, form part and parcel of a single pathological process, and that, therefore, the treatment for one of these neuroses is the treatment for them all. Dr. Mackenzie paid special attention to periodic vasomotor coryza ("hay fever") in discussing the treatment. The indications here are (1) to remove any existing local respiratory disease or irritation, (2) so to alter the nutrition of the nerve-centres that they may not respond so easily to reflex producing impressions, (3) to adopt appropriate treatment for the relief of any pathological process, systemic or local, which may be regarded as a source of direct or indirect irritation of the nervous or respiratory apparatus. Failing in the above, (4) the partial or complete destruction of the vessels or sinuses over the area or areas in which the vascular disturbance is most marked.

The great mistake universally made in the manage-

ment of this affection is the suspension of treatment upon the termination of the attack, and the importance of continuous treatment throughout the interregnum of fancied immunity from the disease cannot be too strongly insisted upon. Among constitutional measures Dr. Mackenzie spoke favorably of arsenic, phosphorus, zinc, quinia, nux vomica, the bromides, and iodide of potassium. In two cases the constant current (10 to 15 cells) was used, one pole over the nape of the neck, and the other extremity of the current passed alternately over the superior cervical ganglion and through the nasal passages. No lasting good results were obtained from the employment of cocaine, which is moreover, open to the objection first pointed out by Dr. Mackenzie (*Trans. Med. Chir. Fac., Maryland*, 1885, p. 189, May 15; *Trans. Am. Laryng. Assoc.*, June 26, 1885, p. 142) that by bringing repeatedly and violently into play the contractile power of the erectile structures, it may thereby weaken their walls and lay the foundation for a permanent dilatation of the erectile cells.

The topical treatment of local nasal, or of general respiratory disease simply closes one door against *all extra* irritation of the centres. In many cases, it is true, this will be alone sufficient. The nasal passages may be the sole avenues through which the centres are influenced, and with the removal of the irritant and the consequent physiological rest of the centres, the disorder may be apparently, and eventually actually dissipated. But there are other cases in which, from what has been indicated above, such a course will obviously fail. Those who consider the removal of the nasal obstruction or irritation as the *sole* remedy for this disorder base their belief upon an incomplete conception of its pathology. The value of the operative measures addressed to the nasal passages will depend, to a large extent, upon whether the nasal disease is primary, secondary, or accidental. It should always receive most careful attention, but at the same time it should not be forgotten, that behind the nasal, throat, and head symptoms stands the neurosis, and that until the sympathetic nerve irritation be overcome we cannot expect thoroughly to eradicate the disease.

Dr. William H. Daly, of Pittsburg, said that he had had considerable experience in the therapeutics of this condition. The iodide of sodium had given him better results than any other single remedy. He uses it in small doses long continued, given in hot water on an empty stomach. He insists that all cases of this kind be subjected to a thorough inspection. The upper air-passages should be carefully examined, and upon the slightest suspicion of local disease the condition should be remedied. If this is done, he believes that the disappointments will be few. The constitutional treatment should be secondary, and the local treatment should occupy the first place.

Dr. E. Carroll Morgan, of Washington, remarked that the galvanocautery has been highly recommended as a successful remedy for hay fever, but his experience with it has not been so satisfactory as that of some other operators. In considering these cases of hay fever, he had been struck with the apparent immunity from this affection experienced by those suffering with anosmia. He had never seen essential anosmia in a subject of hay fever.

He asked the experience of the Fellows in regard to the efficacy of the galvanocautery treatment as a preventitive or a cure for hay fever.

Dr. C. E. Sajous, of Philadelphia, said that in the early part of his experience with the galvanocautery he obtained excellent results. He had a number of favorable cases. Last year he met with a number of unsatisfactory cases. What it depended on he does not know, but the results were not by any means as good as those of the preceding year. It certainly was not from want of attention on his part. Although all the cases were benefited, he did not obtain absolute relief in more than forty-five per cent. Some of the cases treated two years ago, and which escaped the attack the following year, had a recurrence last year. This he considered a matter of great importance, because, in his book, he had advanced the opinion that these cases were absolutely cured. Some of the cases have entirely escaped. One case, treated in 1881 with glacial acetic acid, has had no recurrence.

Dr. C. Seiler thought that the failures of the treatment of hay fever might be explained by the suggestion thrown out in the paper read. The Schneiderian membrane is not the only source of irritation of the vasomotor nerves. The source of irritation may be situated in the pharynx or in the larynx. If the case does not yield to treatment of the nasal membrane, we should look further. Two years ago a case of hay fever presented itself, in which glacial acetic acid was applied, and the following summer the patient was free from hay fever but suffered with asthma. Examination showed a large posterior hypertrophy. This was removed, and since then he has had neither hay fever nor asthma.

Dr. Mackenzie said that if the trouble depends upon an affection of the nasal membrane, the removal of the cause with the physiological rest of the nerve centres, will be sufficient to effect the cure. There are other cases, however, in which there is a general condition of the nervous system which must be removed. He had had cases in which the cure was effected simply by the above plan of treatment without any local applications whatever.

Dr. Samuel Johnston, of Baltimore, reported

A CASE OF NASOPHARYNGEAL GROWTH.

A child was brought to him on account of difficulty in breathing through one nostril. Examination showed that there was a tumor filling up the posterior part of the right nostril. After a short preliminary treatment, an attempt was made to remove the growth with the écraseur. A spray of a four per cent. solution of cocaine was employed. A cord was first passed through the nostril and brought out of the mouth, so that, if necessary, the nostril could be plugged without delay. The wire of the écraseur was applied without difficulty. When the growth had been cut through about two-thirds, the shaft of the instrument broke, leaving the wire and about three-fourths of an inch of the instrument attached to the growth. An attempt was made to apply a second écraseur, but this failed. After trying to remove the portion of instrument broken off, it was decided to wait a short time and allow the growth to slough. Four days later, the attempt to apply an écraseur was again made, and succeeded without difficulty. The tumor measured one and one-half inches in diameter, and was fibroid in character.

DR. C. C. RICE, of New York, discussed

WHAT CASES OF NASAL CATARRH REQUIRE SURGICAL TREATMENT?

Almost every nasal chamber will exhibit irregularities and abnormalities of some kind. The introduction of more improved methods of determining the locality of inflammation has led to a more frequent resort to surgical measures. With the galvanocautery almost any effect from a slight stimulation to destruction of tissue can be obtained. Those who condemn this instrument should state what use of it they object to. Not every case of anterior hypertrophy should be operated upon. The erectile tissue in this situation serves a valuable physiological function in swelling up and excluding irritating particles from the lungs. In determining whether or not an operation is required, the sensations of the patient should be taken into consideration, with the results of the examination. If, after the use of a four per cent. solution of cocaine, sufficient hypertrophy to interfere with breathing is still apparent, it should be removed.

DR. F. H. BOSWORTH, of New York, objected to the view that the so-called erectile tissue of the nose is a true erectile tissue. It assumes the erect position only as a morbid condition. It is simply an enlarged conglomerate mass of bloodvessels. There is no physiological function observed by its swelling up. He also objected to the statement that all persons present abnormalities of the nose. It is a mistake to suppose that we have morbid conditions in every nose. The healthy nasal cavities present a typical appearance.

DR. J. N. MACKENZIE said that the microscope shows that the erectile tissue of the nose corresponds with the erectile tissue in other portions of the body. He believes that these bodies serve the physiological purpose of excluding irritating bodies from the lower respiratory tract. Experiments with horses driven through a cloud of dust have shown that while the anterior portion of the nose was filled with dust, none passed into the larynx.

THE PRESIDENT, DR. HARRISON ALLEN, held that the question of the erectile tissue of the nose should be treated on a broader scale. In man the nasal chambers are exceedingly degenerate. There is no animal in which the nose is so small in comparison with the rest of the face, as in man. It is well known that structures which are passing through a process of degeneration are exceedingly variable. So it is with the human nasal chambers.

Remembering this fact, we come to another of great interest, that all animals with short faces, as the rabbit and cat, have, on the nasal septum, erectile bodies. He held that the object of these bodies is obstructive, and that by swelling up they protect the portions behind. If that is the case, he could not see why we could not claim that erectile tissue exists in man. It was his opinion that erectile tissue does exist, and that it is protective and obstructive.

The following papers were read by title: *Inflammation of the Antrum*, by DR. BEVERLY ROBINSON, of New York. *Additional Notes of a Case of Erysipelas of the Larynx*, by WILLIAM PORTER, M.D., of St. Louis.

A vote of thanks was tendered the College of Physicians of Philadelphia, the Union League Club, the University Club, and the Managers of the Pennsylvania Hospital, for courtesies extended.

The Association then adjourned to meet in New York at the call of the Council.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, May 6, 1886.

THE PRESIDENT, B. F. BAER, M.D., IN THE CHAIR.

DR. HOWARD A. KELLY read a paper entitled

ASEPSIS, NOT ANTISEPSIS: A PLEA FOR PRINCIPLES, NOT PARAPHERNALIA IN LAPAROTOMY.

Medicine, like other branches of science, has been most retarded in its growth by the accumulation of all sorts of useless details, some of which still clog the advance of abdominal surgery, as, for instance, the use of carbolic acid and mercuric solutions at the operating table and the continued use of any elaborate abdominal dressing.

The use of antiseptics in the patient's belly is full of danger and inconsistencies for the following reasons. *First.* If used in strength sufficient certainly to prevent sepsis, the patient is very often killed along with the germs. Of the bichloride solution, it is sufficient to say that its use has been very much curtailed in all maternity hospitals even as a vaginal wash. The danger line is here a very broad one, for the limit appears only to depend upon the most variable of all factors, the individual susceptibility.

Second. It is the great tendency of all operators, and in particular their assistants, to forget the principle involved, and pin their faith to the accidental means of establishing it. This can be seen abundantly illustrated in almost any hospital in the land, where a clean napkin worked in and around the joints and grooves of the instruments in use, or carried under the nails of the operator's fingers, will exhibit sad evidences of soil. Then, too, the actual conduct of the operator is often modified by the false sense of security begotten by the incomplete use of antiseptics.

If germicides must be used at all, let it be before the operation and in strength sufficient to neutralize any sepsis about instruments, sponges, etc. Then let the operator go to work with clean instruments, clean sponges, and clean hands and he will need no antiseptic, and the patient's belly will no longer be a battlefield where germs and solutions fight, often with such direful results to the host. It is his belief that it will not be long before the day of solutions will be past, and that in the future the successful surgeon will go to his work with pure water or dry pans for his instruments and fluid enough to cleanse sponges. His own practice has been to use hydrant water boiled for an hour and allowed to stand, or, better still, distilled water, as used by Prof. Schröder and independently suggested and used by Dr. Joseph Price. He did not believe that reservoir water, dirty as it often is, ever contains any of the specific matter productive of septicæmia; but the process of boiling and using only the supernatant liquid makes it perfectly harmless.

Another fallacy discarded by some of the greatest operators but perpetuated by many is the transferrence of the use of the elaborate Listerian dressings of general surgery to the abdominal wound. These dressings, so manifold and multiform, are clearly intended to

prevent sepsis from penetrating the now closed abdominal wound. This is an accident which fortunately never occurs in the intraperitoneal method; the rapid agglutination of peritoneal surfaces effectively closing the sac. A sterile dry powder will absorb the slight serous discharge at the edge of the wound and suture exits, and above this some absorbent cotton and a firm bandage are all that is required.

While the danger of infection of the peritoneum through the closed wound is minimal; that of an infection of the belly wall through stitch holes is very great, and this is best prevented by the dressing recommended by Keith, of carbolic acid and glycerine, one to eight parts.

With the mind thus freed from the notion that these solutions and dressings are accomplishing anything—from two such dangerous fallacies—operators at large will then work with a living consciousness of the real conditions of success, and they will then be on the alert from the beginning of the operation to its close, keeping within the mental horizon an exact knowledge of everything coming into contact with the patient's belly.

The expression of his convictions and practice will be of value in so far as they are in accord with the following letters upon the subject by the two greatest abdominal surgeons in the world, Lawson Tait and Thomas Keith. Lawson Tait, in a letter, dated March 15, 1886, to the writer, says: "I still use tap water and nothing else; it is never boiled; my instruments are prepared by being washed in soap and water merely. I use no elaborate dressings for the wound, never using anything at all except absorbent cotton-wool."

Mr. Thomas Keith, of Edinburgh, in a communication written March 16, 1886, says: "The secret in abdominal surgery, the secret in all surgery, consists in carrying out the antiseptic principle. You may do this in a simple way or you may do it in a complicated way. All instruments, needles, forceps, sponges, etc., everything about the wound must be disinfected. A weak carbolic solution applied to the wound can do no good—nor harm. You may safely use hot water. My instruments, after an operation, are scrubbed with a nail brush, especially the forceps points. This is repeated before the next operation with a five per cent. solution of carbolic acid. The greatest risk is that we put in septic matter on our hands, instruments, and sponges. Sepsis may come from the wound, but it rarely ever penetrates inside. I use a simple dressing of gauze, eight or ten folds soaked in one to eight carbolic acid and glycerine, extending two or three inches or so beyond the line of incision on all sides. Over this some ordinary cotton-wool, a flannel bandage, and nothing else. Use this and you will never use anything else, and do not look at it for a week or ten days. You ought, for the patient's comfort, to put on an antiseptic dressing of some kind. You will probably often have suppuration with stitches if you do not."

Dr. Montgomery said that we can now eliminate almost entirely the antiseptic agents—carbolic acid, mercuric chloride, thymol, etc.—and can do as well by the most rigid attention to cleanliness in all details of hands, instruments, sponges, and the skin of the patient. Some years ago he felt gratified that, in a patient upon whom he operated before a class at the Philadelphia Hospital, with Listerism and the carbolic spray, the temperature did not rise above 102°. Now, in his private hospital, with rigid attention to cleanliness and thorough washing of the peritoneal cavity with hot water, the highest temperature will be below 100°. After operations involving the opening of the peritoneal cavity, if there has been any opportunity for the escape into it of blood, pus, or cyst contents, he washes it out thoroughly with hot water. After closing the wound he covers it with sublimated gauze and absorbent cotton, and secures this with strips of plaster and a bandage. This dressing remains a week without need of disturbance. If gut sutures, or silk rendered aseptic by a coating of wax with carbolic or salicylic acid, be used, there will be no trouble about suture abscesses. In a recent case, in which the abdominal walls were two inches thick from adipose deposits, these precautions were observed and there was not the slightest suture trouble. He does not now consider the spray of any value, because we cannot use carbolic acid solutions strong enough certainly to destroy germs without poisoning the patient; and the spray only washes the germs down into the wound.

Dr. Parish said that antiseptics are not intended to take the place of cleanliness. The greater the care bestowed on cleanliness in all details, the less will be the need for antiseptics. Boiled water, filtered, is a good washing material; patient, hands, and instruments must be clean to insure good results. Absorbent lint, wet at time of using with a 1 to 2000 mercuric chloride solution, is a good external dressing. Dr. Parish agreed with most of Dr. Kelly's statements, but he believes in the value of antiseptic vaginal injections after labor in hospitals. The maternity wards of the Philadelphia Hospital showed a large number of deaths, varying from three to ten per cent., for many years prior to 1855; but last year, in 247 cases of labor, there were but 2 deaths. One of these was after Cæsarean section in a patient who had been in labor nearly three days before she was brought into the hospital. The other fatal case was in an idiot, and was largely from other causes than the labor, which was not at fault. These good results are due to the use of mercuric chloride injections principally, although new wards have been built and opportunity given for frequent change of nurses when advisable. In a case of septicæmia following adherent placenta, the patient seemed almost moribund, but hot uterine injections of mercuric chloride, 1 to 4000, stimulated her and led to recovery. Water is boiled to destroy possible germs, and filtered to get rid of various impurities not held in solution.

Dr. M. Price thought the heat of the injection used by Dr. Parish was the most important element in stimulating the patient; but the mercuric chloride would do no harm, and the fact that improvement commenced and continued from that time is the important point. The reaction against the use of antiseptics should not be allowed to go too far. They have done great good and cannot be discarded.

Dr. M. O'Hara reported a case of

EXTRAUTERINE PREGNANCY WITH RUPTURE OF THE FALLOPIAN TUBE; LAPAROTOMY ON THE THIRTY-THIRD DAY; RECOVERY.

On September 25, 1885, he was called to see R. H., who had been in good health until seized, two hours

previously, with severe rectal tenesmus, agonizing pain in the pelvis, pains in both flanks and extending down the right leg and arm. From the tenesmus she thought she would have a stool and rushed to the water-closet, but no relief following, rushed to her room and fainted; she was carried to bed, rectal injections were given by those present, but no movement followed, and opiates were given for the relief of the pain. When he saw her she was in collapse, almost pulseless, respiration shallow, extremities cold. The whole surface was bedewed with a cold death sweat. She could not lie on her left side or back, but reclined doubled upon her right side, and would jump up occasionally with exclamations of agony. The history, hastily gathered, gave the following data: R. H. was thirty years of age, mother of three healthy children, the youngest, one year old, she was still nursing. She had never been sick, and had menstruated regularly. One menstrual period had been missed about a week before the accident, and she considered herself pregnant.

The diagnosis was internal hemorrhage due to rupture of the Fallopian tube at the fifth week of pregnancy. Opiates and stimulants were used. The next day Dr. Parish was called in consultation, and concurred in the diagnosis. There was still some shock; pulse 130, feeble and irregular; respiration feeble; temperature normal; great pallor, evidently due to the loss of blood; the abdomen was moderately distended with occasional cramp-like pains; moderate tenderness, but no symptoms of peritonitis. The patient showed signs of reaction, and laparotomy, though discussed, was deferred. Five days after the rupture, the patient was able to bear a close examination. The abdomen was greatly distended; there was no tenderness on moderate pressure; resonance was general, except in right flank, where there was moderate dulness; there was no dulness in the left iliac and lumbar regions except very far back near the kidney. There was an apparent bulging of the right flank. The vaginal surface was generally œdematous, the anterior wall of the vagina was thicker at the cervix and to the left. The cervix is moderately soft and patulous; no bulging of the posterior pouch. It was not deemed advisable to use the sound. The urine was almost black in color. Pulse 104°; temp. 99°; respiration normal. Two days later marked jaundice appeared, although occasional vomiting and purging of bile occurred. A few days later a swelling was noticed on both sides, and in front of the cervix; and a bloody painless discharge, containing decidua-like fragments, escaped from the uterus, and the dulness in the right iliac region disappeared. Urination became painful and difficult. The patient felt so much better that she desired to get up.

Three weeks after the first attack a terrible flooding occurred; it lasted for an hour, and slight hemorrhage continued afterward. There was a decidua in this discharge. At the same time the suprapubic tenderness extended toward the right, and slightly increased on the left side, extending upward as high as the umbilicus. Chills, and a rise of temperature to 101° F., vomiting, constant sharp cutting pain, and emaciation, with signs of softening along the crest of the ileum, and general appearances of blood poisoning occurred, and surgical interference was strongly urged as the only means of averting death. On the thirty-third day Dr. Parish operated, and he prepared the following report of the operation:

There were present Drs. O'Hara, R. P. Harris, DeF. Willard, and McElroy. Dr. Parish proposed to cut down directly on the tumor by an incision immediately above the outer portion of Poupart's ligament, believing that the tumor consisted of blood coagula and pus located external to the peritoneum, and that the anterior parietal peritoneum had been dissected up to such an extent that the mass could be incised and emptied without opening into the peritoneal cavity, and without incurring the possibility of objectionable fluids reaching the serous surface. He also believed that the peritoneal cavity was clean, and that there had been no general peritonitis.

The gentlemen present advocated a median incision for purposes of exploration, and in deference to their views, he first cut through the linea alba just below the umbilicus, making an incision long enough to admit two fingers. The peritoneal cavity was found empty, and the peritoneum quite normal, though somewhat congested. The exploring finger showed that the mass was external to the peritoneum, and had extended upward from the left half of the pelvis to a level with the umbilicus. The broad ligament had become obliterated by separation of its layers. It was not thought advisable to explore with the finger with the view of determining the condition of uterus, ovaries, and tubes. The peritoneal covering of the abnormal accumulation was evidently thin and tense, so that a careful exploration as to the condition of the uterine appendages would have endangered its rupture, and the probable development of general peritonitis. It would have been an easy matter to have stitched the parietal wall of the tumor to the walls of the median incision, and to have then, by incision, emptied the mass of its contents. But such a procedure would have been attended with risk of leakage of the offensive fluid into the peritoneal cavity. To avoid this risk, he now made another incision along the line of original election—*i. e.*, above the outer border of Poupart's ligament—and readily reached the mass cavity without wounding the peritoneum. This incision was made long enough to admit two fingers. About one quart of blood coagula, fluid blood, and pus escaped. The fibrinous masses were removed, and all attached portions were scraped off with the fingers. The curette was avoided chiefly because of the thin upper wall. The cavity was washed out with antiseptic fluid. The median incision was closed with sutures, a drainage tube was introduced into the mass cavity. An incision could not have been safely made through the vagina, as the intervening tissue was too thick, and its vascularity too great. The incision made admitted of more thorough emptying of the cavity.

The patient suffered no shock from the operation. There was a slight sanguinolent discharge, containing small clots, from the drainage tube, amounting to about two ounces in twenty-four hours. Nourishment was taken fairly. The cavity left at the time of operation held ℥xxxij. In two days it had contracted to ℥j; but the discharge was purulent and offensive. A bloody discharge from the uterus had continued since the operation, but was free from odor and diminishing. The last sutures were removed five days after the operation, and two days later the drainage tube was replaced by

a tent. Two weeks after the operation the uterine discharge had ceased, but free bleeding from the wound occurred; there had been no exertion, sneezing, or coughing, to cause this hemorrhage, which occurred about eight weeks after the last menstruation, but a week later a bloody discharge occurred from the uterus and wound. The temperature rose to 103° F. There was no pain on pressure, but there was a suspicious hard spot in the left iliac region. Twenty-four days after the operation the patient was permitted to sit up, and while cheerfully singing felt blood streaming down her legs from the wound; clots passed also from the uterus and rectum. She felt the rectal tenesmus and pains in right lower extremity, similar to those felt at first seizure. Much blood was lost. A similar bleeding occurred three days later, and as life was endangered it was thought necessary to give ether and explore the cavity. It was found that the tissues had been dissected up by accumulated blood and pus, until the cavity extended down the side and front of the uterus and communicated with the rectum at the upper end. The cavity was thoroughly scraped with a curette, and was then packed with alum sponges after disinfection with Platt's chlorides. The patient reacted well. When the wound was injected nothing came from the rectum; but an injection into the rectum came out of the wound, and there was a fecal odor about the wound. Next day the sponges were removed, and muslin tampons, wet with phenol sodique, were introduced. The packing was changed twice each day. Discharges of offensive fecal matter and small gall-stones escaped from the wound.

On February 15th, nearly four months after the operation, the patient is noted as doing uniformly well; the wound is closing; the exudation about the uterus and vagina is disappearing, and the odor and elimination of gas while dressing the wound had disappeared.

May 1st, patient has gained greatly in flesh and presents the appearance of perfect health. A very small short sinus alone remains. The communication with the bowel has closed entirely. Menstruation occurs normally, and there is no bleeding at any time from the wound.

Dr. Parish made a few remarks upon the history of this case and the difficulties surrounding a diagnosis. The patient was thirty years of age and perfectly healthy. She missed one menstrual period, and a week later, possibly in the fifth week of pregnancy, there were signs of internal hemorrhage with shock. Dr. O'Hara at this time made his diagnosis, doubtless correct, of tubal pregnancy with rupture of the cyst, The patient commenced after a few hours to rally. Dr. Parish was called in consultation the next day; he suggested an operation to remove the cause of the trouble, but did not urge it as the symptoms had ameliorated. The patient continued to improve for several days. Afterward a tumor appeared. The first hemorrhage being into the folds of the broad ligament and limited, did not show, but as repeated hemorrhages occurred the tumor increased, pus formed, the embryo softened, septicæmia without peritonitis was developed, and then the operation was performed and was then imperatively demanded. Three months after the original shock, a sudden and nearly fatal hemorrhage occurred simultaneously from the wound, vagina, and rectum. Evidently there was a tubal communication between the uterus and the wound, and a large rectal fistula had formed. This fistula healed without any separate operation.

There was evidently at the beginning a pelvic hematocele without peritonitis, due to a ruptured Fallopian tube. The early operation was proposed, but did not meet with approval. It was evident that the hemorrhage was extraperitoneal, as it would most probably have been fatal if it had burst into the peritoneal cavity. He deprecated the expectant plan of treatment of cases of rupture of the cyst of tubal pregnancy, but in this instance the amelioration of the symptoms at the time when first seen by him led him to hesitate as to the necessity for immediate operation. The sequel showed that in this case an early laparotomy would have been of no service. The patient's recovery is complete.

Dr. Harris heard of this case a week after its commencement, and believed from what he knew of it at that time that it would be advisable to perform the laparotomy; but subsequent developments indicated that the hemorrhage was extraperitoneal and gradual, and there was therefore no immediate danger to be overcome. When, however, he saw the patient, October 28th, he was satisfied that her constitutional symptoms required that an exploration of the abdominal cavity should be made, the blood cyst defined, and then that the blood should be evacuated above the left groin. This opinion being sustained in the consultation, the operation was performed accordingly.

Dr. O'Hara had made his diagnosis at the time of the accident. Operation could not have been performed then on account of the collapse, and after that passed away it did not seem called for until the time of its performance. One question has arisen iu his mind from the subsequent history of the case. Would it not have been better if the wound had been packed from the time of the operation?

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, June 1, 1886.

The President, Charles L. Dana, M.D., in the Chair.

TRIGGER FINGER (DOIGT À RESSORT).

Dr. George W. Jacoby read a paper on this affection, which, he said, is, strictly speaking, one of a surgical and not of a neurological nature—that is, if its pathology as at present accepted is correct. These cases, however, when encountered by the general practitioner, are liable to be referred to the neurologist; hence the importance of being able to diagnosticate the condition. Doigt à ressort is the name given by Nélaton to a peculiar inhibition of motion in fingers otherwise normal. Flexion and extension are arrested at a given point, and if completed by force, the movement resembles the closure or opening of the blade of a pocket-knife. Sometimes only extension is interfered with. As a rule, muscular effort alone is sufficient to overcome the obstacle. Generally the entire motion is painful, particularly at the time of the snap. The patient usually locates the pain in the interphalangeal joint, but a careful examination will show that it is at the metacarpophalangeal articulation. Externally the finger presents nothing abnormal; but pressure over the last-mentioned joint almost always

produces pain, the painful point being usually confined to a small place upon the volar surface of the flexor tendon. In all cases except those of Busch and his own, a hard lentil-sized body, which was particularly painful on pressure, was found attached to the tendon about two centimetres above the digito-palmar fold. All authors lay stress upon the presence of this body, as it is, according to all theories of the mechanics of this phenomenon, essential to its production. In Dr. Jacoby's first case he did not remember to have found any nodosity, but as he did not pay particular attention to it, it may have been overlooked. In his second case, however, knowing of the cases of Busch, and of Marcano's criticism on them, he made a very careful examination, and could say positively that there was no nodosity or abnormality of any kind discoverable.

He saw his first case in 1881, but did not make a diagnosis. The patient was a female servant, who almost continually had her hands in water. She had had vague rheumatic pains for years, but had never had an attack of acute articular rheumatism. About six months prior to her visit to Dr. Jacoby, she began to have a peculiar tingling sensation in the ring-finger of the left hand, with shooting pain upward in the arm; she also complained of weakness of the finger and difficulty in flexing it. There was, however, no distinct *ressort* until two months before he saw her; then she was unable one morning to close the finger, and in attempting to aid herself with the other hand, the finger suddenly snapped shut. Dr. Jacoby saw her only once.

The second case was that of a clerk, aged twenty-eight, whom he saw in November last. The middle finger of the right hand was affected. There was no apparent cause; the patient had never had rheumatism, nor sustained an injury of the finger. The phenomenon came on very suddenly while he was engaged in writing and was very much fatigued. He made his own diagnosis of writer's cramp, and a physician whom he consulted coincided with this diagnosis. Upon examination Dr. Jacoby found the peculiar snap to be well marked, and the patient was unable either fully to extend or flex the finger without the aid of the other hand. Both flexion and extension caused severe pain. Pressure over the metacarpophalangeal joint was painful. Repeated and careful examinations failed to reveal the presence of any nodosity or irregularity whatsoever. The treatment consisted in the application of the galvanic current, but after a few sittings the patient disappeared from under observation.

The affection has been described, and cases published successively by Notta and Nélaton, by Fenerly, Arrachart, Busch, Annandale, Dumarest, Hahn, Menzel, Fieber, Vogt, Blum, Felicki, Herraez, Leisrink, Marcano, and Largeau. The only reference to it which Dr. Jacoby had been enabled to find in any English or American periodical was a translation of Menzel's article, published in the *Boston Medical and Surgical Journal*, 1874, and the description of a case by Annandale, which, however, he evidently did not recognize as a case of doigt à ressort. Dr. Jacoby gave tables of thirty-three cases by different authors. Twenty-one cases were in women and only ten in men, in two the sex not being specified. All the cases were in adults, excepting two. Occupation seemed not to have any influence in the production of the malady. The fingers affected were the thumb sixteen times, the ring-finger fifteen times, the middle six, the small finger twice, and the index-finger only once. In five cases more than one finger was affected. The etiology must, in the majority of cases, be sought in rheumatism; next in traumatism. In some cases no direct cause could be found. The diagnosis was easy. The prognosis was generally fair, as the symptoms usually disappeared after several weeks of appropriate treatment.

DR. E. C. SEGUIN said that he had never seen a case of true doigt à ressort. He had seen two cases which resembled this condition, but which were of an entirely different nature in their etiology. They verified the author's statement that such patients are likely to be sent to a neurologist, and he should therefore prepare himself to make a diagnosis. In one of the two cases to which he referred, the patient was unable voluntarily to flex the terminal phalanx of the thumb, and if it were forcibly flexed it would go back with a jerk. There had been section of the long flexor of the thumb.

DR. M. A. STARR, who had also seen the second case referred to by Dr. Seguin, said the difficulty, which was due to section of a tendon, had been mistaken for paralysis, but Dr. Seguin corrected the error in diagnosis. A surgeon had sent to Dr. Starr within the past week, another patient who at his work was accustomed to make firm pressure with his hand, and suddenly he experienced difficulty in flexing his fingers, being entirely unable to flex the little finger. The faradic current caused flexion of all the fingers but the little one. He sent the patient to a competent surgeon, who made the diagnosis of rupture of the long flexor tendon of the little finger.

DR. WILLY MEYER had seen two cases of doigt à ressort in Europe. One came to the surgical clinic at Bonn while he was assistant. In both patients the middle finger was affected. One patient was a man, the other a woman. In the case of the man a very thorough examination was made, but no apparent pathological change was present. He was able to use his hand, but with some inconvenience. He wore a splint four or five weeks, which left the finger a little stiff, but this was overcome by prolonged warm baths and passive motion. The woman had complained for about two months of pain along the flexor tendon, from the middle of the palm of the hand to the tip of the finger, the pain having grown steadily worse. A small, painful nodosity was felt just below the metacarpophalangeal joint. As there was no doubt that this nodosity was the cause of the affection, they advised its removal, but the patient refused. There were two interesting cases of trigger finger published in the *Centralblatt für Chirurgie*, 1884, No. 16.

Dr. Meyer thought there is always a mechanical cause of the disease, for even in those cases in which no periarticular pathological symptom is observable there may be something wrong within the articulation. As to treatment, were there no apparent cause for the difficulty, he would use the plaster-of-Paris splint, massage, prolonged handbath, passive motion, and perhaps electricity would be advisable. If a nodosity were found, it should be removed.

DRS. C. L. DANA and W. P. WILKIN presented a paper on

GILLES DE LA TOURETTE'S DISEASE,

in which the disease was described as an affection char-

acterized by incoördinate movements (tics convulsives) and by echolalia (automatic echo-speech) and copsolalia (or automatic obscene speech). The description of the disease by Beard, O'Brien, Hammond, and Tourette received attention, and reference was made to the unity of Latah, Miryachit, The Jumpers, and Tourette's cases of tic convulsive. The disease begins almost without exception by attacks of motor incoördination affecting generally the head, face, and upper extremities first, then involving the whole body. After remaining perfectly quiet the patient suddenly makes frightful grimaces, blinks the eyes, snaps the jaws, raises the shoulders, etc.; if the lower extremities are affected the patient stamps his foot, raises himself, and jumps as he walks. After having suffered from attacks of motor incoördination for a time, the patient will, with the attacks, utter inarticulate cries, or he may repeat or echo the words he overhears (echolalia). All this is done automatically and suddenly, and usually with the accompaniment of grimaces and muscular contortions. In the case reported the attacks of explosive obscenity, or copsolalia, had been more prominent than the incoördinate movements. The patient, a boy of twelve years, of neurotic history, when sitting quiet, would suddenly and involuntarily burst out into expressions of the most profane and obscene character, repeating them rapidly for a few moments and then stopping. A surprise or sudden noise of any kind tended to produce an outburst, just as surprises in other cases brought out jumping or incoördinate movements. The condition of echolalia in the case, although less prominent than the copsolalia, was nevertheless well marked. The patient also seemed impelled to tell those things which he most wished to conceal. The motor disturbances were more marked after the patient, through some restraint, had to repress his outbursts of obscenity. The movements and expressions could generally be voluntarily controlled for a while, but only to burst forth again with greater violence. The sudden interjections by the patient of obscene words and expressions were regarded by Tourette as pathognomonic of this affection.

The disease is a chronic one, beginning insidiously and lasting for years, sometimes for a long lifetime. None of Tourette's cases were cured, though some were greatly ameliorated. The diagnosis of the disease is not difficult. From chorea it is distinguished by the suddenness and larger range of the involuntary movements, and by the fact that a muscular explosion is followed and preceded by complete rest. The symptoms are those of a convulsive tic. Echolalia and copsolalia may form part of the symptoms of insanity, and copsolalia has been observed in aphasia. It is easy to differentiate these conditions. As to the pathology, from the long continuance of the disease an organic lesion can be excluded, and from the general history it is apparent that it belongs to the neuro-degenerative disorders. In the treatment one measure had proved of marked benefit, namely, isolation. Tonics, bromides, arsenic, and electrotherapy had caused some amelioration.

THE PRESIDENT remarked regarding the case that the patient had improved very much under treatment. It was one of the cases in which moral agencies had the power of suppressing the symptoms for a time. The audience had probably observed that while sitting quietly the patient had exhibited a peculiar kind of cough which was about the only thing noticeable.

DR. GRAEME M. HAMMOND asked whether the boy was cruel.

THE PRESIDENT replied, not to his knowledge. The only bad trait which the boy had manifested was the disposition to lie.

DR. JULIUS RUDISCH thought it probable the disease as described by Hammond was the same as that prevailing in Kamtschatka. Persons suffering from acute or chronic belladonna poisoning exhibit this jumping tendency. A further interesting fact was the similarity between the symptoms manifested by this class of patients and those of certain persons sensitive to tickling. Some persons suffering from mental weakness or a mild form of insanity are disposed to pronounce very obscene words, to manifest twitchings of the face and other involuntary movements which they sometimes take pleasure in observing in the mirror. It hardly seemed to him that the description of the case presented to-night accorded with that given by Beard and of those in Siberia and similar ones in Java.

DR. E. C. SEGUIN thought it might be questioned whether the case presented was like Tourette's cases on the grounds expressed by the author, namely, the different mode of development, the order of development, and the fact that this patient had a defective mind, whereas Tourette's patients had normal minds. Still, this might be a case in which there was simply an inverse order in the development of the phenomena. He would like to enter a protest against the nomenclature of the disease, especially as it presented no definite clinical history. In some of Tourette's cases there was absence of echolalia or of copsolalia. He preferred Charcot's definition, that of tic convulsive, which might include quite a variety of jerking affections, or another term embracing all possible varieties of these cases might be employed, as abnormal chorea. An interesting, but almost forgotten, French monograph of about 150 pages on these jerking affections was published at Strasburg in 1850. An interesting case had been reported by a distinguished surgeon of New York.

DR. M. A. STARR referred to a case related by Dr. Mills, of Philadelphia, in which a tumor involved the second frontal lobe on the left side and pressed upon the third. One of the prominent symptoms was the tendency on the part of the patient to use profane and obscene expressions, apparently without any power to control it. The case suggested the question, why, since irritation of the central convolutions would produce involuntary motion, irritation of the third frontal convolution should not produce involuntary speech.

THE PRESIDENT was perfectly aware that the case is one difficult to classify, but he felt positive that if there is such a disease as that pictured by Tourette this patient has it. In one journal which he consulted the name Gilles de la Tourette was given it by Charcot, and he was much surprised to hear Dr. Seguin say that he did not approve of that name. However, he agreed with Dr. Seguin that there are objections to the name. He could not understand how some of the gentlemen arrived at the opinion that the condition in this case was due to insanity, for the boy, although there seemed to be some defect in his mental nature, did not manifest any symptoms of insanity.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

Semi-Annual Conversational Meeting, April 22, 1886.

THE VICE-PRESIDENT, JAMES TYSON, M.D., IN THE CHAIR.

DR. GEORGE A. PIERSOL read, by request, a paper on

MEDICAL PHOTOGRAPHY.

The character of photographical work, which the medical man may probably desire to undertake, may be divided into three groups: 1st, photographing specimens; 2d, photographing patients; 3d, photographing microscopical specimens, to which, possibly, a fourth, making lantern slides and enlargements for the purpose of illustrating lectures, should be added. As to outfit, all of these requirements must be borne in mind. At the present time, possibly the best equipment for medical work would be one of Walmsley's modified copying cameras, as manufactured by the American Optical Company, taking a 4¼ x 5½ plate fitted with a first-class lens. Regarding the latter, those desiring the best might limit their choice with advantage to the lenses made by Ross, Dallmeyer, or Beck. Personal experience with the Beck lens warrants a most favorable recommendation, as its superior qualities adapt it admirably to work requiring fine definition with great focal depth. As a matter of economy, the excellent lenses of Darlot might be substituted for the higher-priced English glasses. As much less expensive, the "Waterbury" outfit (camera, lens, and tripod, costing but $14) is worthy of consideration. The addition, however, of a light wooden extension is imperative to obtain sufficient length of bellows to reproduce specimens of a normal size—a matter often desirable. A lens adapted for medical work would be a rapid rectilinear combination of about 8½ or 9 inch equivalent focus—a shorter focus lens possessing insufficient focal depth.

In addition to the camera and lens, a simple dark-room outfit embracing non-actinic lanterns, three trays, graduate, dust-brush, light-proof box for opened packages of plates, and a few tubes are necessary. Proper illumination is essential for satisfactory results. An evenly distributed top light is most desirable. This can be obtained readily from a skylight; such a convenience, however, is frequently wanting. An excellent substitute may be readily had by removing the apparatus to the open air and stretching over all a piece of muslin, thus providing a mellow, evenly distributed top light admirably adapted for photographing specimens. In focussing the use of a focussing glass is advantageous. Focus without the diaphragm on a point lying midway between the extremes of the planes of the specimen; afterward put in the smallest stop (say No. 128 F. = 45.2 English scale). The small stop necessitates a rapid plate unless the exposure is unduly prolonged. A fast plate and small stop, when properly employed, yield pictures with the best possible definition and great focal depth, qualities very essential to satisfactory representations of specimens.

In order to insure acceptable results a correct exposure should always be attempted. The length of exposure depends upon many conditions. Among others, actinic power of the light, this being modified by sunshine or clouds, by time of day, and by season of the year; color of the specimen—a tissue deeply dyed with blood requiring much greater exposure than the alcohol-bleached organ; size of diaphragm; sensitiveness of the plate; strength of the developer. Since these all modify the duration of any individual exposure, the oft-heard comparisons as to the bare numbers of seconds given upon various negatives are of very little importance. Each worker must determine for his own conditions the exact number of seconds required on the ordinary specimens, and, with this as a basis, meet changing conditions as the occasion demands. While there are many excellent formulæ, the following developer has always answered admirably, and with it, by slight modifications, all kinds of work may be satisfactorily performed.

No. 1.

℞.—Pyrogallic acid (Scherling's)	1 oz.
Sodium sulphite	6 oz.
Water	48 f℥.

No. 2.

℞.—Sodium carbonate	4 oz.
Water	48 f℥.

No. 3.

℞.—Sodium bromide	1 ℥.
Water	1 f℥.

Use equal parts of No. 1 and No. 2 with three to five drops of No. 3 as a normal developer, the entire bulk of the developer being, say, three fluidounces. Remember No. 2 accelerates, while No. 3 retards development; No. 1 giving density. A plate is fully developed when the deep shadows show some detail and when the cardinal outlines of the picture show on the back of the plate with reflected light. The most usual failures result from over-exposure and under-development. When a plate blackens rapidly, without the requisite amount of contrast between the high lights and deep shadows being at first present, we may strongly suspect over-exposure. Pour off the developer, flood with water, and then proceed once more with a developer to which say twenty to thirty drops of No. 3 have been added. The remedy for under-development is evident. Strongly to be emphasized—select a good brand of plate, choose a reliable developer, and only change when there exists a strong reason for so doing; by this plan alone can the peculiarities and valuable qualities of any plate be learned. In addition to these fixed conditions, by at first employing but one lens and a single diaphragm, the path of the tyro is greatly smoothed.

In photographing a patient, if possible a skylight should be used; when, however, none exists we can succeed fairly in any well-lighted room, preferably one having two side windows. Opposite to window No. 1 and about four feet removed we place our subject almost parallel—facing the second window. The lower half of window No. 1 is covered with muslin, while over the upper half is partly drawn the shade. Window No. 2 (furthest removed from the patient, but toward which he looks) is unobstructed. The camera is placed somewhere near the second window. Some simple background should be improvised and the darker side of the subject should be lighted up by a reflector of white muslin. Since the actinic power of light is immensely reduced within doors our exposure would be unduly prolonged if we used the smaller diaphragm; we are

therefore usually compelled to use the larger ones—Nos. 8 or 16.

Photographing microscopical specimens requires a camera with a long bellows—twenty-four to thirty inches. This may be had by adapting to the front of an ordinary camera an extension, which may be readily constructed of wood, cardboard, or tin. The inner surface of the entire track of the light from the objective should be lined with black paper with matt surface. Any microscope admitting of a horizontally placed tube, with a good stage and centring substage may be employed. Likewise any objective possessing good definition and flat field may be used. The eye-piece is best removed, the camera and microscope being united by simply inserting the draw-tube into the extension of the camera and wrapping the joint with a few turns of some black fabric.

Illumination is very important: Four sources may be considered—lamp, calcium, electric and sunlight. Calcium and the arc electric lights, while quite satisfactory by way of experiment, are practically debarred by the expense and inconvenience attending their use. The incandescent electric light, at the present time, offers little advantage over good lamplight, and is far inferior to sunlight. It may be stated, once for all, that sunlight properly employed is the best possible illuminator for photomicrography. As it requires some care in its employment, and, above all, the devotion of the busiest hours of the day, we may inquire what can really be accomplished by lamplight. Mature consideration and considerable experience justify me in saying that with care and proper manipulation really good photographs may be made with powers up to the one-sixth; of course, very much higher lenses may be employed—even the one-fifteenth and one-sixteenth, but thoroughly satisfactory lamplight work with lenses approximating 1000 diameters is seldom if ever seen. One thing seems demonstrated beyond question, that with any power it is almost impossible to obtain the soft but brilliant micronegative, full of detail and vigor, that sunlight is capable of yielding. For lamplight a lamp with a single moderately broad wick should be employed, the edge of the flame being turned toward the object.

For very low powers, three to one and one-half inches, no condensing lens is necessary. With higher powers, the interposition of a four-inch focus plano-convex lens is advantageous, and with still higher lenses (say from the two-thirds up) some form of substage condenser in addition is almost imperative. After many experiments with various forms, a "B" eye-piece as a condenser seems to yield the best results, giving a powerful and evenly distributed illumination. Accurate centring and even distribution are of the utmost importance. First centre the substage condenser. Avoid "pushing" the illumination, as when the condenser is racked too high the margin of the field is distorted. Experience teaches the advisability of using a slow "clean-working" plate (say Carbutt's "B") in preference to the very rapid brands. A mirror placed at the end of the work-table opposite the ground glass of the camera is of great assistance in adjusting illumination; a small hand glass is also convenient to reflect the picture when hunting fields. The most important, as well as difficult, manipulation is focussing. With a short "pull" no especial requirements, but when a long camera is extended, removing the ground glass to three or four feet, some arrangement of moving adjustments is necessary. The simple arrangement with cord and weights, which I devised eight years ago, and which has of late become extensively used, is recommended as meeting all possible requirements. It has been put to the severest tests with powers of over 3000 diameters, and never has been found wanting either in delicacy or accuracy. A modification may be applied to the coarse adjustment. A focussing glass is indispensable. The point of most accurate focus is where the image seems to meet into the ground glass. Preparations must be well differentiated and thin, possessing sufficient contrast and actinic opacity. In certain cases, by using glass of a complementary color to the stain, excellent results are obtained. While lamplight suffices for low powers, for the high powers and for difficult work, such as bacteria, sunlight is by all odds to be preferred. By arranging a simple mirror to swing laterally and vertically, we can obviate the necessity for a heliostat. Light from this mirror passes through a plano-convex lens of eight inches focus, through a cell of ammonio-sulphate of copper, to the substage condenser. Here, again, accurate centring and evenly distributed illumination are absolutely essential for good results. To those aspiring to the best results, especially with difficult subjects and high powers, a trial of sunlight is strongly urged, as by this illumination alone are many of the capabilities of photomicrography rendered possible.

Succeeding his address, the lecturer exhibited on the screen about fifty examples of various kinds of work. Nearly half of these were photographs of pathological specimens; the remainder were photomicrographs of histological and pathological preparations, taken with objectives giving from the lowest to the highest amplifications, among which an admirable photograph of the Bacillus tuberculosis attracted much attention.

SOCIETY OF MEDICAL JURISPRUDENCE AND STATE MEDICINE, NEW YORK.

Stated Meeting, June 10, 1886.

DR. E. C. SPITZKA read a paper on

THE ATTITUDE OF LEGAL MEDICINE VERSUS HYDROPHOBIA.

He did not think there is another branch of inquiry in which time-honored tradition, erroneous observation, ill-balanced reasoning, and immature theory play so large a part as in that relating to the transmission of rabies from animals to man. While his experience with spurious hydrophobia was considerable, it was infinitely small with the real disease. Indeed, he remarked, he would say *nil*, but that he wished to avoid discussing a question both sides of which are represented by able thinkers and observers, viz., whether there is such a thing as genuine hydrophobia in man, due to transmission from lower animals, and to nothing else.

He then announced the following propositions as embracing the points maintained in the preliminary part of his paper:

1. There is, at present, no proven epidemic of hydrophobia either in New York City or its vicinity.

2. A number of deaths have occurred from spurious

hydrophobia (lyssophobia), in New York City and its vicinity during the past nine months.

3. The agitation of the subject of Pasteur's method of preventive inoculation for hydrophobia, and the accompanying strained accounts of suffering and death from that disease, are responsible for these deaths.

4. To prevent the serious and oft-times fatal imaginary disease, it is necessary to inculcate a healthy public sentiment, which shall frown down the agitation of questions which are of a strictly scientific character by persons who are neither biologists nor physicians, and who have no other motive than the creation of a sensation, regardless of consequences.

5. It should be strictly inculcated on all officers intrusted with the preservation of the public peace and public health, that the only way to determine whether a dog is suffering from rabies or no, is to submit him to inspection by competent veterinarians in a living condition. The desirability of some such ordinance is attested by the fact that persons on the road to death from hydrophobia have recovered on learning that the dog which bit them remained alive and well.

6. The results of researches on hydrophobia should, for the present, remain within the domains of technical literature. There are so many problems connected with the question of rabies which are as yet, and promise to remain for some time, unsettled, that it would be tantamount to criminal recklessness prematurely to publish alarming discoveries in the lay press.

7. The method of demonstrating rabies by direct inoculation of the brain is fallacious. The conclusion drawn by Liautard, from an experiment thus performed, that the Riverdale dog was mad, was obtained by misleading methods.

8. The means to be adopted to prevent future outbreaks of spurious hydrophobia is to muzzle the dogs, to dam up the torrents of ink flowing from the pens of hasty investigators within appropriate receptacles, and to exclude sensational publications from the household.

Canine pathology would hereafter prove an easy science to master, since it would consist of but one simple syllogism, viz.: All symptoms of canine disease are symptoms of hydrophobia; all dogs presenting such symptoms should be destroyed; hence, for all such dogs there is but the remedy of the bullet or the policeman's club. Dr. Spitzka referred to the history of the so-called epidemic that had prevailed since the "needless wanton and wicked agitation of the matter which was begun a few months ago." For a week after the announcement was made relative to the Newark epidemic, several scores of cases of hydrophobia were reported from every part of the country; and he asked if a single case of the kind could be remembered in which an attempt meriting the adjective scientific—indeed, any attempt whatever—was made to verify the existence of the disease, and where it was really verified.

He then took up a number of the cases which he said had been published far and wide, with the deliberate and malicious purpose of causing a sensation; and stated that he would show that the result was the production of imaginary disease, real alarm, real suffering, and something else which was sufficiently real, viz., death. In regard to the Newark cases he said: A dog had bitten a number of other dogs, as well as six children. The transgressor was killed, in accordance with the time-honored custom of hanging such criminals first, and trying them afterward. Four of the children were sent to Pasteur, and two remained in Newark; while the bitten dogs were locked up where they could do no harm, but, on the other hand, where it could be determined whether they had really been inoculated with hydrophobia or not. The result proved that they had not, and the two children who did not go to Paris remained as well as the others; showing that in this case, at least, the alarm had been a false one.

In speaking of the case of George Neall, the Newark pound-keeper, he said that it seemed that for several days—that is, during the entire time of his illness—he obtained no drink, and ate nothing except an apple. Dr. Spitzka stated that it was evident that the man was under the dominion of a terrible fear from the fact that he got up shortly before his death, walked into the kitchen, placed his head in a pail of water, and had a spasm, in consequence, which lasted half an hour; and he then asked whether starvation, depressing neurotic remedies, and terror were without an effect on this patient's vitality.

Animals, he said, are liable to become insane, as men do, from various causes and in various ways; and he had hoped to exhibit to-night an insane cat, the pet of a friend, which had been shot in the head. In Japan, as Professor Law informed us, the boys produce what is supposed to be rabies by administering a certain fungus to dogs. He believed the number of persons reported as dying of hydrophobia almost simultaneously with the agitation of the subject of Pasteur's method, but who had been bitten between nine months and nine years before, would be found to reach a hundred or more.

The ablest review which had yet been made of the subject of spurious hydrophobia was by Dulles, of Philadelphia. He showed that this condition might result from (1) disorders of the stomach, especially in very young children, as well as from inflammation of the œsophagus and stomach in adults; (2) disorders of the respiratory apparatus; (3) disorders of the circulatory apparatus; (4) systemic conditions, such as rheumatic fever, gout, uræmia, intermittent fever, mercurialization, and pregnancy; (5) disorders of the nervous system: meningitis, pachymeningitis, tumors, and parasites of the brain, simple neuritis, acute mania, delirium, alcoholism, tetanus, hysteria, and narcotic poisoning. He then related three cases which he said he was able to add to the instances collated by Dr. Dulles, where symptoms commonly or erroneously regarded as hydrophobia were present. The first was one of epileptic delirium, which he saw in consultation in Williamsburgh, and the report of which he had published in the New York *Medical Record*. The second was one of typhus fever, which was sent to the Presbyterian Hospital, New York, and which, on account of the character of the delirium present, was supposed to be one of hydrophobia. The third case, one of disseminated sclerosis, described by Pollak, he quoted from the *Archiv für Psychiatrie*. Dr. Spitzka considered the resemblance between the spurious hydrophobia and the so-called real affection so great that he could not criticise any one for believing, with Dulles, that the existence of a genuine hydrophobia in man is not proven; and by way of corroboration subjoined some extracts from an article

in Pepper's *System of Medicine*, the author of which is a believer in the reality of hydrophobia.

Later he referred to the fact that a "Pasteur Institute" had been organized in New York, and said that he believed he was doing that institution no injustice when he said that the more hydrophobia scare could be created in the community the better it would flourish. It rests, for the present, on two foundations: First, on a rabbit, brought over from Paris, which had been inoculated by Pasteur; and, secondly, on the allegation that hydrophobia now exists in New York City. Inasmuch as one of the incorporators of the Pasteur Institute (Dr. Liautard) had contributed to the public alarm on this question, by the published autopsy on one dog, and of an experiment on another, he preferred to present for consideration certain facts which he thought would not be gainsaid by any of his medical friends, and to bring before the Society some animals to which these observations related. The brains of one or two of these would be removed, and those present could examine both the living and the dead subjects, so that they could themselves test the correctness of his conclusions.

Dr. Spitzka then proceeded to quote from the report of the Morosini case prepared by Dr. Liautard, of the *American Veterinary Review*, as published in the *New York Herald*. Miss Morosini was bitten on April 14. The dog was killed almost at once, and on the same day was sent to the Veterinary College. Dr. Bulkley (the attending physician in the case), requested that a post-mortem be made as early as convenient, as it was a matter of the greatest importance. The post-mortem was begun without delay, and there were revealed important lesions: congestion of the fauces, empty condition of the intestinal tract, which was slightly congested, stomach containing one large bird feather, the kidneys somewhat congested, and the bladder empty, retracted, and somewhat congested. These symptoms were considered sufficient evidence, with the history of the case, to justify a diagnosis of rabies. A report to that effect was made to Dr. Bulkley, and it was urgently advised by Dr. Liautard that the injured young lady should go to Paris as early as possible and place herself under M. Pasteur for treatment. Then it was decided at once to try cerebral inoculation, as carried out by M. Pasteur, to confirm the diagnosis.

The brain and the medulla of the dog having been carefully kept, another dog was secured for inoculation on the following morning. After placing the dog under complete anæsthesia, the cranium was trephined a little on one side of the median line. The dura mater was then carefully divided, and a little of the medulla of the first dog placed over the cerebrum of the second. The edges were brought together by sutures protected by wadding and collodion, and the animal was placed in a secured kennel for observation. He recovered from the anæsthetic, ate well, and the wound healed slowly; presenting apparently nothing abnormal. On April 30, however, the dog appeared to be more affectionate to those who were caring for him, and also to the house-surgeon who watched him. On May 1, the sixteenth day after the inoculation, the patient showed the first symptom of dumb rabies, paralysis of the lower jaw. The mouth was slightly open, the jaw hung down, and abundant saliva flowed from the mouth. The next day the lower jaw became more paralyzed, and the animal was weak and tottered in his gait; paraplegia now showed itself. The dog died on the 2d, and at the autopsy the following lesions were found: Pharynx highly congested and containing considerable foreign matter, such as hay and straw; the stomach also highly congested. In it were found the same foreign substances seen in the pharynx; the intestines were empty, and the bladder empty and retracted.

So far as Dr. Liautard's diagnosis of rabies in the dog that bit Miss Morosini was concerned, Dr. Spitzka said that he had to state that as assistant to Professor Henry Draper, at the University of New York, he had had the opportunity of examining scores of dogs brought into the laboratory, and that not one of them ever showed any signs of rabies. On the contrary, they exhibited that docility and affection which, under the circumstances, are the most touching characteristics of the animal. There was scarcely one, and certainly not one young dog, in the stomach of which he did not find more or less foreign material. This became a subject of comment in the laboratory, and it was supposed to be a satisfactory solution of the problem that intestinal worms were found in large numbers in those dogs which had the largest and strangest assortment of foreign bodies in their stomachs. A cat, which had a similar collection, contained three tapeworms. The feather in the stomach of the dog which bit Miss Morosini, therefore, went for nothing. As to the congested kidneys, congested fauces, and empty bladder, he would simply ask how the fauces, kidneys, and bladder would appear of a man who had been hunted for several hours by a large crowd armed with shotguns and pitchforks.

With regard to the "dumb rabies" which Dr. Liautard thought he had produced in the second dog, every one familiar with the researches of Schiff, Flourens, Hitzig, Fritsch and Goltz would recognize in it the ordinary results of experimental and inflammatory disturbance of the brain functions in the dog. According as the irritating injection affected one cortical field or another, the paralysis would vary; but paraplegia is quite characteristic of meningitis and encephalitis in the dog. In order to show that the symptoms of hydrophobia, as Dr. Liautard considered them, could be produced in healthy dogs by introducing non-rabic foreign substances into their skull cavities, he had performed experiments on six dogs, the details of which he now proceeded to present. In the first the cranium of a mongrel bulldog was trephined May 29, and, after incision of the dura mater, six cubic millimetres of the spinal cord of a healthy calf, slaughtered about twenty-eight hours before, introduced in the brain substance. On June 2 there was manifest paralysis of the hind legs, with considerable fever. The eyes were dull, and there was ptosis. The disposition of the animal was exceedingly friendly. The wound was granulating and discharging healthy pus. In the second dog, a mongrel Spitz, on May 29, a button of bone was removed in the right temporal region, and some of the same material used in the last experiment was introduced in a comminuted form. On June 2 it was noticed that there were some paralysis and ataxia of the hind legs. It showed a marked tendency to fawn, instead of its naturally aggressive disposition.

The third dog, a large mongrel black-and-tan, was trephined June 2 about one inch from the median line,

and through the opening twenty drops of an emulsion of a calf's cord were slowly injected by a hypodermic syringe into the brain. This was followed on June 5 by paralytic and ataxic symptoms, which were more marked on the left side than the right. On June 2 a fourth dog, a mongrel collie of vicious disposition, was operated on in the same way as the last, except that the material injected was an emulsion prepared from the pons and cerebellum of a patient who died of hydrophobia on May 14, whose brain he obtained through the courtesy of Dr. Paul H. Kretschmar, of Brooklyn. This was injected into the parietal region, and—by calculation—into the thalamocrural region. On June 6 there was some doubt as to whether there was any weakness of the hind-quarters or not. At that date it was the liveliest of the four dogs, and fed best.

In the fifth dog a slit was made in the dura mater, after trephining, and a piece of common yellow soap of the size of fifteen cubic millimetres introduced between the dura and pia. In the sixth, ten drops of horse's stale urine were injected into the brain substance of the posterior region. This animal had a glandular and suppurating swelling in the inferior nuchal region.

Dr. Spitzka then put the following questions: 1. Is there any symptom of hydrophobia related of Dr. Liautard's animal which is not present in those dogs inoculated with the spinal cord of a calf, with soap, and with putrescent fluid?

2. Are the mental disturbances resembling those of dumb rabies, so-called, not much greater in the dogs exhibited to-night than appears in the account of Dr. Liautard's dog?

3. Would it not have been well to perform such experiments as those of which the result is shown to-night at the same time, or before attempting to make of the inoculation of the brain a test of hydrophobia, and alarming the public?

4. Is it wise, in view of the bad effect which the knowledge that the dog which bit a person was mad has on that person's mind, to make this announcement in such a shape that it must reach him or her?

5. What reason had Dr. Liautard or his house-surgeon for omitting an examination of the brain in the case cited, or, if they made it, for failing to publish its morbid appearances?

Dr. Spitzka said he had been thus lengthy in detailing the faulty nature of the evidence on which an epidemic of hydrophobia might be announced, and in demonstrating that mere terror and expectant attention are the chief factors in the spread of the disease, because the practical problem with which legal medicine has to deal is not so much the prevention of a genuine, as of a more or less artificial disorder. Inasmuch as the same measures which would check the spread of the real disease—if it existed—would also, and as effectually, check the ravages of that terro-psychosis known as hydrophobia, we might deal with both together. The bite of any animal, or even of men, suffering from febrile disorders, excitement, tetanus, or blood-poisoning is more or less dangerous; and undoubtedly many of the sequelæ of such bites have been summed up under the general caption of hydrophobia. Whatever theory we adopt, it is the duty of the community to protect its members not only against the more or less venomous bites of such animals, but against intrinsically harmless bites. Historically speaking, the system of muzzling dogs has been found so efficacious that it is strange that it has not been universally adopted.

Having given some statistics on this subject, and stated that the plan of muzzling has been adopted in England, he remarked that everything, of course, depends on the manner in which the law is enforced. If, as is only too likely in our own community, the persons entrusted with its execution are selected from the worst class of ruffians, and their pay made dependent on the number of dogs they can steal from their owners, and the amount of blackmail they can levy through such acts, the public will become disgusted with the law, and those evading it will be supported, instead of condemned, by public opinion. Another precaution, which has been almost uniformly neglected on this side of the Atlantic, is the proper observation of suspicious dogs. There is no evidence so good as that obtained from the living subject of rabies. In addition, much suffering, and, indeed, many deaths, may be prevented by the discovery that a dog which had bitten is not mad; and that can be determined with certainty only by keeping the animal alive.

With regard to the recognition of a Pasteur institute as a factor in the legal enactment of measures to prevent hydrophobia, he quoted the following passage from the *Deutsche medicinische Wochenschrift* of April 29, 1886, which coincided entirely with his own opinion: "Attention has been repeatedly directed in this journal to the fact that the method of Pasteur cannot be unreservedly accepted as an established one, and that the foundation of Pasteur institutes is premature until the method of preventive inoculation be placed on an absolutely fixed basis, which, in view of the large number of experiments on animals and inoculations made daily in Pasteur's laboratory, will presumably be effected in a not unduly remote period. It were high time, indeed, that we left behind us the stage of newspaper reports, which for some months have furnished nothing new beyond the daily increasing number of those inoculated and the deaths, and replaced the present monopolization of the matter by the coöperation and critical proof-tests of competent observers."

One of the dogs inoculated by Dr. Spitzka died the day before the meeting, and the autopsy revealed the presence of well-marked meningitis, while another, the bulldog inoculated with a portion of the spinal cord of a calf, was dispatched in the presence of the audience. The autopsy in this instance, which was made immediately after death by Dr. N. E. Brill, showed the animal to have been suffering from hemorrhagic encephalitis.

DR. DULLES, of Philadelphia, expressed himself as extremely sceptical in regard to the existence of such a disease as true hydrophobia. If there was such an affection, he thought that Dr. Spitzka had produced it with simple inoculations of matter not derived from rabid subjects. He believed that fifty years from now the specific theory of hydrophobia would have as few adherents as the doctrine of witchcraft has at the present day. The patients suffering from so-called hydrophobia may be divided into three classes: *first*, those affected with a variety of diseases giving rise to symptoms of a similar character to those described as belonging to rabies, such as tetanus, for instance; *second*, those

having certain affections of the mind, such as mania and other forms of insanity; and, *third*, those suffering simply from fright.

DR. DADIRRIAN, formerly of Constantinople, gave an amusing account of the dogs of that city, and said that, although these animals are so numerous, hydrophobia is practically unknown there. It is true that in the popular mind there is some dread of the disease, and that occasionally persons die from the bites of dogs; but he did not think there were any genuine cases of rabies.

DR. H. E. BRILL read a short paper, the purport of which was to throw discredit and ridicule upon Pasteur's work.

DR. KRETSCHMAR said that, however sceptical one might be in regard to this matter, he thought that if the sceptic were called upon to treat a *bona fide* case of the disease, as he had recently, he would be convinced that it had a very positive existence. In this instance he did not know that the patient had been bitten at all until within a few hours of his death, and supposed that the man was suffering from spasm of the glottis; while the man himself was not at all the victim of fright, and at one time in the course of the attack, when he had been rendered comparatively comfortable by morphia, felt confident that he would recover.

DR. H. M. BIGGS, of the Carnegie Laboratory, said that while Pasteur had not, in his opinion, as yet positively demonstrated the correctness of his views, he thought that he had done enough to show that there was a strong probability of their being substantially true. Excluding the Russian patients, who had been bitten by wolves, there were but two cases out of over nine hundred in which hydrophobia had occurred in those who had been inoculated after being bitten by animals supposed to be rabid; and there are certain circumstances connected with both of these which render them of such a character as not to invalidate the protective power of the inoculations under suitable conditions. Pasteur had devoted six years of arduous study to this subject, and if it were not hydrophobia that he was dealing with, it must be some new disease, the existence of which had hitherto been unknown, since there was no form of septicæmia which had an invariable period of inoculation, this period being of definite duration in both dogs and rabbits, and being entirely different in the two kinds of animals.

As to the Newark children, while it had not positively been demonstrated that the dog which bit the children had true rabies, it seemed to him highly probable that he had, since he acted precisely in the manner described in the books as characteristic of rabid dogs. Thus, he ran for a distance of about three miles, snapping and biting at everything that came in his way. He had learned, on the highest authority, that it was not known certainly whether the dogs which were kept under observation afterward, had really been bitten or not. At the end of two or three months, no symptoms of rabies having developed in any of them, they were all killed except one, which was returned to its master; and it was a significant fact that ten days after it was released from confinement it was seized with the characteristic symptoms of rabies, and died. While it was true that the two children which had remained at home were as well to-day as the four who were inoculated by Pasteur, he had positively ascertained that in the case of one of them there was only a very slight abrasion produced by the dog, and that in the other there was not even as much as this. The skin was entirely unbroken, as the boy was protected by a heavy overcoat, in addition to other winter clothing.

He had been called, in consultation, to see Neall, the keeper of the dog-pound in Newark, who died a short time since of supposed rabies, and had agreed with those in attendance that the case was probably a genuine one of the disease. The inoculations which he had made with specimens of the brain and spinal cord of this patient had, however, proved entirely negative in their results; and, therefore, he was forced to the conclusion that a mistake in diagnosis had been made in this instance. As to the inoculations of dogs made by Dr. Spitzka, and described in his paper, the results obtained were of no value whatever, and he felt called upon to express his emphatic protest against the whole tone and drift of the proceedings this evening. In other fields Pasteur had accomplished such splendid results, and done such admirable scientific work, that he thought that his present researches should not be condemned, until they had received a more thorough investigation than it had as yet been possible to make in regard to them.

CORRESPONDENCE.

AMERICAN COMMITTEE ON THE NOMENCLATURE OF MENTAL DISORDERS.

To the Editor of THE MEDICAL NEWS.

SIR: In connection with the notice in THE MEDICAL NEWS of June 5, 1886, on the subject of the resolution passed at the late International Medical Congress at Antwerp, referring to the subject of "Mental Disorders," I would beg to state that a communication was received at the February meeting of the Medical Jurisprudence Society of Philadelphia, asking that body to coöperate with the International Congress in this matter.

Action was taken, and the Society appointed Professor H. C. Wood and Dr. Charles K. Mills as a committee to act conjointly with Mr. Clark Bell, the editor of *The Medico-Legal Journal*, forming the American representatives of the International Congress.

The object of this committee is to assist the Congress in the collating of international statistics of the insane and the discussion of the best basis thereof, as well as the classification and nomenclature of mental diseases.

G. MILTON BRADFIELD, M.D.,
Recorder of Medical Jurisprudence Society of Philadelphia.

June 10, 1886.

CHRONIC INFLAMMATORY DISEASE OF THE UTERINE APPENDAGES.

To the Editor of THE MEDICAL NEWS.

SIR: I should be obliged to you if you would allow me to make a few comments on the paper read by Dr. Henry C. Coe, before the New York Academy of Medicine on April 1st.

Dr. Coe says, "that during the three years that have elapsed since Tait called special attention to this condition," upon which I wish to say that it is more than

ten years since I drew attention to chronic inflammatory disease of the uterine appendages. Dr. Coe makes me say, "that in chronic disease of the ovaries the tubes are always affected." I cannot find that I have ever said anything of the kind. If I have done so, I should be glad if Dr. Coe would give me the reference, in order that I may correct it, for it certainly must have been said in the earliest days of my experience, and probably with some qualification in the context which has escaped Dr. Coe's notice.

The third and most important comment which I wish to make is, that I do protest against Dr. Coe, or anybody else, calling a thing "Tait's operation," against which I have uttered my protest endlessly. I need no more than call attention to the last protest which I have made in this direction, in an address delivered before the Medical and Chirurgical Society of Edinburgh: "*Normal ovariotomy* is an operation requiring no skill, little experience, and hardly any judgment, and therefore has been extensively, and, I fear, somewhat indiscriminately, practised. I have protested again and again against it; yet many, whose voices are no louder against it than my own, blame me for it, accuse me of doing it, and generally get confused over the whole subject. I desire once more to say that, save when the seat of such organic disease as will explain genuine suffering, the uterine appendages ought not to be removed; and that those who attribute all the pelvic aches and ails of women to the ovaries and tubes, and rush in to remove them, are dangerous people. I do not say they are dishonest, but I say they are misguided. This kind of laparotomy epidemic is no worse, however, and certainly not more harmful, than the tenotomy epidemic which spread all over the world when Dieffenbach first introduced his brilliant and serviceable operation. Every oblique eye was made more oblique on another axis, and many clubfeet were hopelessly destroyed; results to be deplored, but common enough in all instances of human progress. New things—especially new drugs—are always done to death; and I greatly fear that indiscretion with such a new drug as chloral has done more harm than all the surgical indiscretions collectively."

Surely this is language strong enough not to be misunderstood. The removal of the appendages in cases where they ought to be removed is far too difficult an operation to be undertaken either by a novice or by one whose practice is this special department of surgery has not already had an extended field. No operation is more difficult than one which ought to be undertaken in a proper case. There can be little doubt that the tendency of the discussion to which I allude will be to do good in one direction by condemning indiscreet and ill-considered operations; but I fear it may do harm in the other by leading people to believe that proper cases for operative treatment are not common, whereas they are indeed very common in every large centre of population. I am, sir, yours, etc., LAWSON TAIT.

BIRMINGHAM, June, 1886.

NEWS ITEMS.

MONTREAL.

(From our Special Correspondent.)

NEW APPOINTMENTS IN MEDICAL FACULTY OF MCGILL UNIVERSITY.—Dr. Richard MacDonnell has been appointed Professor of Hygiene and Dr. T. Wesley Mills, Professor of Physiology.

Dr. Arthur A. Browne having resigned the Chair of Midwifery, Dr. J. C. Cameron has been appointed in his place.

MATERNITY HOSPITAL.—It is expected that before another session has passed, a new University Maternity Hospital will be built, the old one having become too small for the requirements of the school.

COLLEGE OF PHYSICIANS AND SURGEONS OF ONTARIO.—The Council of the College met in Toronto, June 6th, and elected the following officers: President, Dr. H. H. Wright, of Toronto; Vice-President, Dr. Henderson, of London; Registrar, Dr. Payne. The retiring President, Dr. Bergin, M.P., gave an address in which he stated that the profession was overcrowded, and strongly advised that the standard of qualification should be raised. He suggested that the Council should take measures to compel the Imperial Government to carry out the pledges it has made to the Government of Canada, viz., that Canada should have the regulation of her own medical affairs, and that British legislation should not qualify men to practise in Canada.

A MEDICAL SCHOOL IN WHEELING.—It is proposed that the Medical Department of the Virginia State University be hereafter located in Wheeling.

HONORS TO DR. HOLMES.—Cambridge is about to confer upon Dr. Oliver Wendell Holmes the honorary degree of Doctor of Letters. It is also stated that Dr. Holmes will shortly pay a visit to Oxford, as the guest of Professor Max Müller.

SIR WILLIAM JENNER has been reëlected President of the Royal College of Physicians.

AN ENGLISH POST-GRADUATE SCHOOL.—A proposition to establish a Post-Graduate Medical School in London, England, is being agitated.

THE CONTAGIOUS DISEASES ACTS of Great Britain, by which prostitution was regulated in a number of the garrison and seaport towns, have been repealed by a vote of 245 to 131. The *Lancet* expresses regret at the repeal, and says that henceforth "disease and immorality in their most revolting forms are to riot in the midst of our garrison towns."

THE 120TH ANNUAL MEETING OF THE STATE MEDICAL SOCIETY OF NEW JERSEY was held at Sea Girt, on June 9th. The following officers were elected:

President.—Charles J. Kipp, M.D., of Newark.

Vice-Presidents.—John W. Ward, M.D., of Trenton; H. G. Taylor, M.D., of Camden; B. A. Watson, M.D., of Jersey City.

Corresponding Secretary.—William Elmer, Jr., M.D., of Trenton.

Recording Secretary.—William Pierson, Jr., M.D., of Orange.

Treasurer.—W. W. L. Phillips, M.D., of Trenton.

Standing Committee.—T. J. Smith, M.D., of Bridgeton; E. J. March, M.D., of Paterson; and D. C. English, M.D., of New Brunswick.

The next meeting will be held at Beach Haven, June 10, 1887.

DEATH OF DR. G. G. KINLOCH.—On June 7 Dr. G. G. Kinloch, a son of Dr. R. A. Kinloch, of Charleston, was fatally injured in a railroad accident. Dr. Kinloch was a gentleman of high culture and professional attainments, and his loss is deeply felt by all who knew him.

CREMATION IN FRANCE.—The French Chamber has just adopted, by a vote of 323 to 180, the following modification of the existing law regarding *liberté dei funerailles:*

"Any adult or free minor, capable of being a testator, may freely determine the mode of his sepulture. He may elect inhumation or incineration, may will his body or any part thereof to institutions of public instruction or to learned societies, and may regulate the conditions of his funeral, notably in regard to its civil or religious character."

THE next meeting of the Canadian Medical Association will be held in Quebec, on August 18th and 19th.

A CHAIR OF EVOLUTION.—HERR PAUL VON RITTER, of Basle, has left to the University of Jena the sum of 300,000 marks (£15,000), the interest of which is to be applied solely to the promotion of the study of phylogenetic zoölogy, according to the doctrine of Darwin, of which Professor Häckel, of the above-named university, is an able exponent. Of the above-named sum, 130,000 marks are to be received at once, and the remainder on the death of the testator. Professor Häckel proposes to apply a portion of the money to the foundation of a new extraordinary professor of zoölogy, to be called the Paul Ritter Professorship.

A FLOATING GRAVEYARD.—A very singular and troublesome condition of affairs is reported from Kansas City. For the past six years, the pest-houses for the reception of smallpox patients have been located upon an island in the Missouri River. From the associations, this island has received the uncanny, but somewhat suggestive name of "Pest-house Island." Here were buried thirty-five corpses of persons who have died from smallpox during the past six years. By a change in the course of the river, a not uncommon thing for the erratic streams of the west, the entire graveyard has been washed away, and the coffins containing the remains of thirty-five smallpox victims are now gently floating down the waterway to the Gulf of Mexico. The authorities were powerless to prevent this occurrence. The fact that the water-supply of St. Louis, and other towns of less pretensions, comes from water with which the muddy Missouri mixes, lends a dangerous spice to this romantic story.

THE LARGEST SEWER IN THE WORLD.—It is said there is now being built in Washington, D. C., a sewer which is larger by seven feet than any other sewer in the world. In its smallest part it is larger than the largest of the sewers in Paris. For over 2000 feet it is a circular sewer of 22 feet in diameter. There is connected with it a sewer of 5000 feet, or nearly one mile in length, of 20 feet in diameter. A fully equipped palace-car, locomotive and all, could be run through it without difficulty. This enormous sewer is intended to drain the immense watershed lying to the north of the city. Besides that, it will carry to the eastern branch of the Potomac all the contents of the smaller system of sewers in the northern part of the city. It will take probably a year to complete the work. The Boundary Street sewer, with its connecting systems, will cost when completed over $700,000.

DEATH OF A PATIENT OF M. PASTEUR.—A telegram, dated Paris, June 7, states that on that day a farmer from Roumania died of hydrophobia while under treatment by M. Pasteur. The Roumanian was bitten by a rabid dog on May 11, and reached M. Pasteur on May 25. After he had been under treatment several days he exhibited symptoms of hydrophobia on Saturday last and suffered the agonies of rabies for nearly forty-eight hours before death relieved him. This man's death and all the circumstances attending his case are held to upset the theory about the incubation period of hydrophobia, for the farmer was under M. Pasteur's treatment for a long while before the expiration of the time heretofore deemed requisite for the poisonous saliva to obtain control of the victim's system.

NOTES AND QUERIES.

THE DIAGNOSIS OF THE SEAT OF INTESTINAL OBSTRUCTION.

To the Editor of THE MEDICAL NEWS.

SIR: In THE MEDICAL NEWS of May 29, 1886, page 602, is a note on "Laparotomy for Intestinal Obstruction." Could not a *competent ileo-cæcal* valve account for the collapsed condition of small intestines, even when the seat of stricture is seated in the sigmoid flexure? Yours very truly,

JUDSON DALAND.

PHILADELPHIA, June 1, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING JUNE 14, 1886.

MEAD, F. W., *Passed Assistant Surgeon.*—Granted leave of absence for twenty days, June 9, 1886.

GUITERAS, JOHN.—*Passed Assistant Surgeon.*—Granted leave of absence for thirty days, June 14, 1886.

WATKINS, R. B., *Assistant Surgeon.*—Granted leave of absence for thirty days, June 4, 1886.

PETTUS, W. J., *Assistant Surgeon.*—To proceed to Charleston, S. C., for temporary duty, June 11, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JUNE 8 TO JUNE 14, 1886.

BLENCOWE, E. FRYER, *Major and Surgeon.*—Sick leave of absence still further extended six months, on surgeon's certificate of disability,—*S. O. 131, A. G. O.*, June 7, 1886.

TILTON, HENRY R., *Major and Surgeon.*—Ordered for duty as Post Surgeon, Presidio of San Francisco, Cal.—*S. O. 38, Department of California*, June 1, 1886.

WATERS, WM. E., *Major and Surgeon.*—Ordered from Department of the East to Department of Columbia.—*S. O. 133, A. G. O.*, June 10, 1886.

MERRILL, JAS. E., *Captain and Assistant Surgeon.*—Ordered from Columbus Barracks, Ohio, to Department of Columbia, to take effect upon the expiration of his present leave of absence.—*S. O. 133, A. G. O.*, June 10, 1886.

ROBINSON, SAMUEL Q., *Captain and Assistant Surgeon.*—Ordered from Department of Columbia to Department of Texas.—*S. O. 133, A. G. O.*, June 10, 1886.

OWEN, WM. O., JR., *First Lieutenant and Assistant Surgeon.*—Ordered from Department of Columbia to Department of the East.—*S. O. 133, A. G. O.*, June 10, 1886.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

NEPHROTOMY FOR PYELITIS.

BY I. S. STONE, M.D.,
OF LINCOLN, VA.

H. J., æt. thirty-two, farmer, consulted me in August, 1885, giving the following history: For four years he had discharged mucus or pus with his urine. During all this time he had undergone treatment for cystitis, and of late for supposed Bright's disease. Micturition had been frequent, and during the past two years he had been obliged to evacuate his bladder every half hour or hour. Some pain had been experienced in the lumbar region—never acute, however—and early in the disease it had been accompanied by hæmaturia. None of these symptoms had caused attention to be directed to the kidneys as the seat of the disease.

Accepting the statement of the patient as fact, his urine had never been examined microscopically, hence the presence or absence of tube casts had never been determined. He had received treatment from various physicians, and had apparently tried nearly all remedies supposed to influence the urinary tract. His bladder had been sounded for stone with a negative result. The urine on standing a short time threw down a copious deposit of pus, fully twenty per cent. of its volume; specific gravity 1.020; albumen present in small quantity after careful filtration, though its presence in such cases is negative. When examined microscopically it was found literally swarming with bacteria. No tube casts were present. In appearance the patient was much emaciated, and suggested phthisis, or similar wasting disease, his condition unfitting him for any business pursuit. An exploration of the bladder was not permitted, owing to the extreme weakness and sensitiveness of the patient.

A diagnosis of pyelitis with contracted bladder was made at this time, but the patient was unwilling to undergo operative interference. A general tonic plan of treatment was instituted, and in addition to this the chloride of gold and sodium, gr. $\frac{1}{20}$ every three hours, was given.

Improvement followed at first, and enabled the patient to supervise his business affairs for a few months. His health began failing in November, and I was called to see him again. At this time he consented to have any treatment necessary for his relief. A tumor was discovered in the left lumbar region, causing pain on pressure and giving obscure fluctuation. On December 23d, the patient being etherized, an incision was made beginning at a point half an inch below the last rib, three inches from the spine, extending downward and slightly forward for three inches. The various muscles were easily recognized, and only one vessel required a ligature. Venous hemorrhage was considerable, owing probably to obstructed circulation. Some difficulty was experienced in detecting the kidney, owing to the firm adhesions found subsequently, and also due to the absence of fat usually found in this region. The adhesions of the sac enveloping the kidney to the muscular tissues—*i. e.*, the quadratus lumborum—adjoining, caused the movements of the kidney in respiration to be imparted to this muscle. The movements of the kidney *per se*, alluded to by Tiffany in his interesting article on nephrolithotomy, in cases like the one under consideration, must prove deceptive, and consequently useless as a guide. No hemorrhage followed section of the kidney, owing to its extreme degeneration. About two ounces of pus escaped from a cavity nearly in the centre of the organ. Examination of this cavity furnished no exact information of the condition of the remainder of the organ, but enough was apparent to decide against further procedure at present. The possibility of nephrectomy, even after this preparatory operation, was not entertained, because of the difficulties discovered in this exploratory incision. After thoroughly irrigating the abscess cavity and wound with bichloride solution 1 : 1000, a drainage tube was inserted, and the wound carefully closed. An iodiform dressing was applied, and the patient put to bed. A catheter was introduced into the bladder, giving exit to an ounce of bloody urine.

The patient reacted well from the operation, and had a good night, requiring only a small quantity of morphia—gr. $\frac{1}{8}$. Temporary improvement followed. His pulse formerly 115–140, now 75–85; temperature formerly 102°–103°, now 99°–101°; appetite much improved. The wound discharged urine for a week, after which none could be discovered. The drainage tube was removed in ten days, after which pus continued to flow from the wound, and a probe could be easily passed into the kidney. His improvement continued for three weeks, during which time he sat in his chair, and walked from bed to chair at will. The amount of purulent discharge was greatly diminished, for ten days none was seen in the urine. In about three weeks, however, the patient grew worse, and was unable to take food in sufficient quantities. To this were added signs of tubercular disease of the left lung, which carried off the patient on February 3, 1886, forty-three days after operation.

Autopsy four hours after death.

The peritoneum was undergoing septic inflammation on the left side, caused by escape of a small amount of pus from the abscess in and around the kidney. Right kidney enlarged fully five inches in length, apparently healthy. Left kidney covered by densely thickened and cicatricial peritoneum. The descending colon firmly adherent to the sac of a large abscess, in the centre of which was the kidney in a state of advanced degeneration. The opening

made at the time of the operation was patent, and the exit for pus posteriorly was direct and complete. The left ureter was correspondingly dilated for three inches of its length, and contained one-half ounce of pus. The bladder was so much contracted as to be recognizable only by its location after a sound had been passed through the urethra into it. Its capacity was not more than an ounce.

The autopsy showed conclusively that any attempt to remove the kidney must have resulted unfavorably. This case is cited to give force to the growing sentiment in favor of actual exploration of the kidney in cases of suspected renal disease. Had nephrectomy or even nephrotomy been done at the proper time, this patient might have been saved. Certainly the one healthy kidney had been doing the work of two for months, perhaps years.

It remains an open question as to the cause of this case of pyelitis. There was no history of stricture or gonorrhœa. The cystitis commenced with the discharge of pus, and the left ureter was dilated at its upper extremity and was not at its lower, therefore it seems probably that it was primarily pyelitis, and the contraction of the bladder resulted from secondary cystitis.

BACTERIOLOGICAL NOTES.

BY GEORGE M. STERNBERG, M.D.,
MAJOR AND SURGEON U. S. ARMY.

(Concluded from page 682.)

MICROBE OF FOWL-CHOLERA AND OF RABBIT-SEPTICÆMIA. — The difficulties into which we are thrown by the confusion which exists with reference to nomenclature are illustrated by the fact that the organism at present under consideration is called by some observers a micrococcus, by others a bacterium, and by others a bacillus. Thus we have in Eisenberg's list, under the head of "Pathogenic Bacteria," No. 32, bacillus of fowl-cholera—*cholera des poules* (Pasteur); and No. 33, bacillus of rabbit-septicæmia (Koch).

In the recent work of Crookshank,[1] the same organism is described under the headings, *Micrococcus of Septicæmia in Rabbits* (Koch); and *Micrococcus Cholerœ Gallinarum* (*Bacterium of Fowl-cholera, Microbe du Cholera des Poules*).

Klein refers to the same organism under the headings *Bacterium Septicæmia* (Koch) and *Bacterium of Fowl-cholera* (*Microbe du Cholera des Poules*).[2]

Under these circumstances the more general term "microbe," which we have placed at the head of this article is convenient.

Our object in calling the attention of the readers of a medical journal to this particular microbe is to illustrate the difficulties of classification and certain other points to which reference has been made. Important questions in epidemiology are involved in our researches relating to the infectious diseases of the lower animals, and at the present day no one will be likely to consider it beneath the dignity of a physician, or of a medical journal to consider the evidence relating to such diseases as fowl-cholera and rabbit-septicæmia.

[1] Practical Bacteriology, London and New York, 1886.
[2] Microörganisms and Disease, London, 1885.

The researches of Toussaint,[1] of Gaffky,[2] of Dowdeswell,[3] and others others seem to establish the fact that the microbe which Pasteur has shown to be the cause of fowl-cholera, and has described as a micrococcus, is identical with the "bacillus"—"micrococcus," "bacterium"—of that form of rabbit-septicæmia which Koch and Gaffky have induced experimentally, and also, it is probable, with the microbe of "Davaine's septicæmia."

The organism, as obtained from the blood of infected fowls, is identical morphologically with that found in the artificially induced septicæmia of rabbits, and in pathogenic power and behavior in culture-media, the microbe, as obtained from one source or the other, presents no appreciable differences. Dowdeswell, in a recent paper (*l. c.*), infers that the micrococcus to which I have given the name *M. Pasteuri* is also identical with the above. This is a mistake. The organisms differ in their morphology as well as in their pathogenic properties. *M. Pasteuri* does not kill fowls and pigeons, and is not so quickly fatal to rabbits, as is the "bacillus of rabbit-septicæmia." The last-mentioned organism inoculated into the ear of a rabbit in the smallest quantity causes death in from sixteen to twenty hours; while Fränkel[4] has shown that *M. Pasteuri*, when inoculated into the ear of a rabbit, gives rise to a non-fatal local infection, followed by immunity; and my own numerous experiments show that in subcutaneous injections of a considerable quantity of a fresh culture, a fatal result does not occur in less than twenty-four to forty-eight hours. There are also differences as regards the growth of the two organisms in culture-media, and especially with reference to the temperature at which growth may occur. *M. Pasteuri* requires for its development a temperature of 30° to 35° C., and is therefore restricted, in temperate climates at least, to a parasitic mode of life—*e. g.*, in the human mouth. On the other hand, the microbe of fowl-cholera and of rabbit-septicæmia grows, although slowly, at ordinary temperatures, and may be cultivated in solid or liquid media without the use of an incubating-oven. That it is not restricted to a parasitic mode of life is shown by the fact that various experimenters have induced this form of rabbit-septicæmia by injecting beneath the skin of these animals an infusion of flesh, which had been freely exposed to the air for several days and had become putrid.

Koch first pointed out the fact that in stained preparations his "bacillus" of rabbit-septicæmia stains deeply at the two extremities, while the central portion remains unstained. This has been verified by numerous observers, and is readily seen in a good preparation made from the blood of an infected rabbit or fowl.

This staining of the two ends gives to the rods, when viewed with a low power, the appearance of diplococci, and the same impression is conveyed by

[1] Identité de la septicémie experimentale aigué et du cholera des poules. Compt. rend. Ac. d. sc., Paris, 1880, xci. 301–303.
[2] Experimentell erzeugte Septicämie, etc. Mitth. a. d. Kaiserlichen Gesundheitsamte. Berlin, 1881. i. 93–116.
[3] Proceedings of the Royal Society, London, No. 221, 1882; also Journal Roy. Mic Soc., vol. vi. pp. 32–36 (1886).
[4] Zeitschrift für klin. Med., Band x. H. 526, S. 402–460, 1886.

the examination of the organism in fresh blood. Thus Pasteur describes it as having the form of the figure 8. It is now generally recognized, however, that this microbe is not a coccus. If we adopt Zopf's classification, it must be placed in the genus *bacterium;* or if we follow the nomenclature of the Berlin school of bacteriologists we must call it a bacillus.

The view maintained by Coze and Feltz, by Wernich,[1] and by others, that there is an increase in pathogenic power when the bacillus of rabbit-septicæmia is transmitted by successive inoculations through a series of animals is not sustained by the more recent researches of Gaffky,[2] and of Dowdeswell.[3] These observers have shown that the maximum degree of virulence is exhibited at the outset. Gaffky, after considering the experimental evidence in a most careful manner, says:

"A progressive virulence, such as is affirmed by the supposed law of Davaine, has not been demonstrated up to the present time either for septicæmia or for any other experimental infectious disease.[4] On the contrary, the experiments of Davaine are in accord with our own, and show that in the first, or at latest the second generation, the full virulence is reached" (l. c., p. 114).

In general, we may say that the experimental evidence relating to the infectious diseases of the lower animals gives no support to the supposition that harmless microörganisms may acquire pathogenic power, within a brief time, as a result of exceptional circumstances in their environment. On the other hand, we have evidence that many pathogenic organisms are widely distributed in nature, as is the bacillus of rabbit-septicæmia and fowl-cholera, and that while their abundant multiplication must depend upon conditions relating to the supply of pabulum, temperature, etc., their pathogenic power is one of their fixed physiological characters.

But we have also experimental evidence which shows that this pathogenic power is subject to modifications. According to Pasteur, cultures of the microbe of fowl-cholera, when kept for two or three months, become "attenuated," as regards their virulence. And this diminution in virulence is said to correspond with the length of time the culture is kept, and to be preserved in a series of cultures made at short intervals. A similar "attenuation" of virulence has been demonstrated in the case of the anthrax bacillus and in the bacillus of *rouget* (swine plague), and a *premier* and *deuxième vaccin* may now be obtained for each of these diseases from M. Boutroux, 28 Rue Vauquelin, Paris, whose establishment is in the immediate vicinity of Pasteur's laboratory, where the attenuated virus is prepared.

That pathogenic organisms may undergo similar modifications in nature's laboratory is extremely probable, but this is quite a different thing from the *de novo* development of pathogenic power. In epidemics of certain diseases—*e. g.*, yellow fever—it often happens that the earlier cases are of a comparatively mild character, and that, as the epidemic progresses, a greater degree malignancy is shown. In the specific eruptive fevers, also, it is well known that epidemics differ widely and that such a disease as scarlet fever, for example, may prevail in so mild a form as to be shorn of its terrors. If these are germ diseases, it is difficult to account for the wide differences exhibited in the character of different epidemics, except upon the supposition that the germ is subject to modifications as regards its pathogenic power.

In the case of the bacillus of rabbit-septicæmia which has been found in various parts of the world in putrid material—beef-infusion, etc.—the evidence of pathogenic power as regards this very susceptible animal, would be wanting but for our laboratory experiments; for the habits of rabbits, in a state of nature, do not bring them in contact with putrefying material. But domesticated fowls are often brought in contact with such material, and it is well known that local epidemics of fowl-cholera occur most frequently among fowls which are subject to insanitary influences, and especially to over-crowding and filthy surroundings. It seems extremely probable that epidemics of fowl-cholera may be developed *de novo* as a result of such insanitary conditions, because the germ is a common and widely distributed pathogenic organism. In like manner we may suppose that epidemics of typhoid fever, of yellow fever, and of cholera, may be developed within the area of endemic prevalence of these diseases—*i. e.*, where the germ is indigenous—independently of transmission by human intercourse or fomites. This is a very different matter from the *de novo* development of the germ, or the transformation of a harmless microorganism into one having specific pathogenic power.

[1] Wernich, die accomodative Züchtung der Infectionsstoffe. Kosmos, iv. Jg., Heft 8 (Nov. 1880).

[2] Mitth. a. d. k. Gesundheitsamte, Berlin, 1881, i. pp. 108–114.

[3] Proceedings of the Royal Society, London, No. 221, 1882.

[4] This statement is no longer correct. Pasteur has demonstrated a progressive virulence in the virus of hydrophobia when this is transmitted through a series of rabbits. This is shown by the gradually diminishing period of incubation, which has been reduced from fifteen to six days.

MEDICAL PROGRESS.

SALOL, A NEW ANTIRHEUMATIC AND ANTISEPTIC.—VON NENCKI and SAHLI have discovered and made use of a new combination of salicylic acid, which presents certain advantages over the salts at present in use. In the new compound the acid is chemically combined with phenol, and forms a white, tasteless powder, nearly insoluble in water, but quite soluble in alcohol. Experiments show that this compound, called salol by Nencki, is unaffected by gastric digestion, but is, in pancreatic digestion, decomposed into its component parts, which are absorbed and excreted unchanged. Under its use the urine becomes very dark, but no disagreeable constitutional effects are produced. Sahli has himself taken the drug in doses of from 90 to 120 grains without producing ringing in the ears, and in other individuals experimented upon this symptom was always less marked than in the case of an equivalent amount of the ordinary salicylic salts.

The efficient dose is found to be thirty grains, given three or four times daily. Thus administered, its effects in acute, subacute, and chronic polyarthritis and muscular rheumatism were found to be fully as advanta-

geous as those of the exhibition of sodium salicylate, while the fever appeared to be more rapidly diminished.

A case of chronic urticaria, which had resisted treatment for several months, was rapidly cured by this agent, as were also several cases of supraorbital neuralgia.

The fact that the urine of patients thus treated remains unchanged, even when kept at body temperature for weeks, suggests the possibility of the usefulness of this treatment in vesical catarrh.

Nencki has obtained good results from the local application of the drug in ozæna, otorrhœa, and gonorrhœa.—*Wiener med. Presse*, May 9, 1886.

A Cleanly and Economical Method of Applying Ointments.—At a recent meeting of the Manchester Medical Society, Dr. Brooke exhibited a number of ointments, prepared with a solid base, composed of cacao butter, wax, and oil, or lanolin, and cast into the form of sticks ("salve-sticks"). He has found them particularly useful in making applications to the face and hands, since their melting-point being high, they do not run at the temperature of the body, as do ointments prepared with the ordinary bases; and, when dusted over with powder, they are practically invisible. When covered with Mather's, or Seabury's and Johnson's adhesive rubber (waterproof) plaster, they offer a mode of applying remedies to the skin which is more durable than the Unna-Beiersdorf plasters, and less expensive. With this protective covering, they are especially applicable to the treatment of psoriasis by chrysarobin, and possess several advantages over the methods of Pick, Auspitz, and Besnier, in that the fatty menstruum is preserved; they do not need such frequent renewal; they are more readily applied, and do not cause any dragging on the skin and hairs. The fear of staining the clothing is completely removed, and the patient may, moreover, bathe without disturbing the dressing. They are supplied enclosed in small cases, like those used for cosmetics, so that they can be conveniently carried in the pocket. Somewhat similar preparations, which had been since brought out and described by Dr. Unna, were also shown.—*British Medical Journal*, May 22, 1886.

Application of Egg-shell Membrane in Myringoplastic Surgery.—Prof. E. Berthold, of Königsberg, has just published (Wiesbaden, 1886) a brief monograph on the use of the membrane found adherent to the shell of the hen's egg in the formation of an artificial ear-drum. This operation, the minute details of which are given in the original, may be regarded as an extension of the method of skin-transplantation practised by the author in 1878. The cases in which the shell-membrane method was used are described in full. For wounds of the membrana covering a large area the author still prefers the operation of skin-grafting.

Recent Investigations into the Cause of Kakké (Beri-beri).—The results of the investigations which have for some time past been in progress under the direction of Dr. M. Ogata, of the medical department of the Imperial University, into the subject of the *kakké* bacteria, have recently been published in the *Official Gazette* (April 13th), from which we give the following abstract of Dr. Ogata's conclusions based upon a series of long and elaborate experiments:

1. There is a specific bacterium present in *kakké* patients. The bacteria may be cultivated artificially, and may be distinguished from other forms of bacteria by their form, and more especially by their physiological and pathological properties.

2. The bacteria cause symptoms similar to those of *kakké*, either if inoculated in monkeys, young dogs, rabbits, or pigeons, or if given with food to monkeys and dogs.

3. These bacteria produce a peculiar substance, which, when injected into rats, also causes *kakké*-like symptoms, and they often die.

4. Nutrient gelatine with grape sugar becomes acid in reaction during development of the bacteria.

5. An acid substance may be obtained from the nutrient fluid just mentioned. This is soluble in alcohol and ether, and subcutaneous injection of this solution into rats causes paralysis and numbness of the hinder part of the animal.

6. Blood in the body of a patient dead of *kakké* and in the later stage of *kakké* is acid in reaction.

7. This acid substance may also be obtained from the blood mentioned above (6), and this succeeds, too, in causing the paralysis and numbness in rats.

8. The substances productive of the bacteria and these in the blood of subjects dead of *kakké*, and in the later stage of the disease are probably identical.

9. *Kakké* poison appears to enter into the system from the digestive canal.

10, Predisposition to *kakké* appears to be increased by digestive disturbances.

11. The proper seat of *kakké* is in the digestive canal, and especially in the duodenum. The stomach appears, also, to have a share of it.

12. The morbid changes in the various other organs are secondary to the intestinal lesion, and due to the action of the substance produced by the bacteria.

13. The blood of the animals which were experimented on and died from the influence of the bacteria was acid.

14. The substance, which is acid in reaction, and may be extracted by ether, may also be obtained from the urine of the *kakké* patient.

15. The bacteria exist in the fauces and intestinal contents, but not in the urine.

16. Although bacteria different from those of *kakké* have been inoculated in various animals, no symptoms of *kakké* appeared.

From the above statements it appears that *kakké* is a contagious disease, perhaps infected through the digestive canal; that it takes its seat in the canal; and that the morbid changes in the other organs are all secondary to the intestinal lesion.—*Sei I Kwai Medical Journal*, May, 1886.

Enormous Doses of Bismuth in Cholera.—At a recent meeting of the Madrid Academy of Medicine, Señor Sanchez, of the Military Sanitary Service, described his method of treating cholera, which consists in the main in giving huge doses of subnitrate of bismuth—150 grains every half-hour or hour—until the diarrhœa is arrested. The oil of mustard is also employed externally, and a very rigorous diet enforced, even bouillon being excluded.—*The Lancet*, May 22, 1886.

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SATURDAY, JUNE 26, 1886.

RESTRICTION OF RESEARCH.

SOME years since a terrible "mill horror" filled several of our hospitals with a number of sadly maimed sufferers who had jumped from the third and fourth stories to the ground to save themselves from being burned to death. A number were injured so severely that they died at once. In other cases the nature of the accident was perfectly clear, as fracture of the vertebræ, pelvis, etc., and they were cared for according to the nature of their cases. A third class, however, remained. That they were gravely injured no one who had seen them jump or who saw their suffering could for a moment doubt. But what was the exact nature of the injury? The spine was evidently the seat of the trouble, but the precise nature of the accident could only be surmised. But a few weeks since we saw one of these poor victims still complaining of pain and inability to work, yet the most careful examination failed to reveal any perceptible lesion. Probably the patient will die after years of suffering without any post-mortem that will show what evil was done, or, if the lesion be determined, it will be, probably, without a full understanding of the relation of the antecedent causes, or time and attacks of disease since the accident will have so obscured the initial injury that no inference of value can be drawn from the case. What is most urgently wanted is a series of facts as to the later effects from such accidents, effects which must vary with the remoteness of the accident, with the nature of the injury, and the organ injured.

Especially do we need this information in the case of injuries to the spine. Who that has had any large experience in hospital work does not recall many a case of asserted injury received in railway accidents, or in mills, or by falls, etc., in which it was a serious puzzle, after a time, to determine whether there really was any lesion, or whether the patient was not shamming in order to secure the snug berth of the hospital for the winter, or large damages from the employer, or the company. "Railway spine" has come to be an enigma in consultations and the opprobrium of the profession in the courts, one expert declaring, years after the accident, that there were the most frightful after-effects, and another, equally eminent, declaring that he could not discover any ill effect whatever. The trouble lies in the want of exact knowledge. We cannot produce a definite lesion in a definite way, and at a definite time kill the patient and find the precise lesion. Yet upon just such exact knowledge depends our whole systematic treatment of these, at present, obscure cases, and upon the same knowledge depends also the question of the just amount of damages really due to a deserving sufferer, or fraudulently claimed by some arrant rogue, whose reward is made possible only by our ignorance.

We have alluded to these facts at some length on account of the recent arrest and prosecution of a well-known surgeon in Jersey City. The facts have been much distorted by the over-zealous members of the Society for the Prevention of Cruelty to Animals, and by a sensational journal in that city, and then telegraphed all over the country to the great harm of a deserving and faithful student of science.

It was to solve exactly the difficult and serious problems we have above alluded to that Dr. Watson began his experiments. Not in the interests, or at the cost of a rich corporation, but purely at his own expense and wholly in the interests of science and human sufferers themselves, has he prosecuted his researches until now. He arranged an apparatus, by which dogs could by dropped a distance of twenty-five feet, not on to an iron framework which was broken and also supplied with spurs and spikes, but on to a wooden floor, striking at a prearranged spot, and so producing, as nearly as possible, a predetermined lesion. That he was engaged "in breaking dog's backs and then leaving them to die in their agony," as alleged by the paper alluded to, is not only not true but such procedure would have totally destroyed the value of his experiments. To determine whether after a concussion of the spine there would follow at any remote period such symptoms as we see alleged by patients and by claimants in court, it is needful that the back be *not* broken, and that the animals be well fed and carefully tended after the accident; that is to say, that the animals should be placed in precisely similar conditions to their human counterparts.

The experiments were, in the nature of the case, painful, and in part this could not be avoided. But we are assured that, wherever possible, an anæsthetic

was used, and even the veterinary surgeon of the Society for the Prevention of Cruelty to Animals itself declared that "he was satisfied that there was no cruelty exercised."

Needless and useless cruelty we would cordially join in denouncing and in punishing as it deserves. But when an honest effort is being made for the relief of human suffering and the promotion of justice, we must confess that it seems that the sufferings of a few dogs should not be placed in the balance. On the other hand, it is "torture" to a fellow human being to be arrested unjustly, charged with inhumanity, and his name made a by-word of reproach all over the land as a human fiend, to say nothing of the anxious hours and days before the issue of the trial is reached, and the serious expense to which the defendant is put.

We are glad to see that the New Jersey Medical Society, at their session just after the event described, showed that they had lost none of their confidence in Dr. Watson, and passed a strong resolution endorsing vivisection.

A NOVEL SUGGESTION IN ANTISEPTIC TECHNIQUE.

A VERY ingenious method of insuring the absolute cleanliness of the hands before the performance of surgical or obstetric operations has been suggested by BELAIEFF, in the *Centralblatt für Gynäkologie*, No. 19, 1886. It consists in rendering distinctly visible all the minute nooks and crannies of the hands in which may lurk and linger matter possibly or presumably infectious. A further advantage consists in the fact that until these hiding places are absolutely cleansed their presence and locality remain distinctly evident.

The method itself is extremely simple. The blue pigment, aqua marina, is very thoroughly rubbed up with vaseline, and the hands of the surgeon or accoucheur are carefully rubbed with the mixture until it is richly embedded under and around the nails and all portions of the hands are colored with it. It is then washed off with a nail brush, soap, and water. In individuals with smooth, soft hands this is a matter of but a few minutes; when, however, there exist any irregularities of the nails, a quarter of an hour of vigorous brushing may be required before the last trace of blue pigment, as sought for in a strong light, is removed.

THE ASSOCIATION OF AMERICAN PHYSICIANS.

THE wisdom of organizing a special society of clinicians and pathologists was fully demonstrated by the character of the gathering which took place at Washington last week. The successful formation of the Association marks a departure in American medicine, the consequences of which will, we feel sure, be far-reaching and beneficial. In other fields there have been for some time active societies, the work of which has stimulated enormously the cultivation of special branches and tended in no small measure to the development of scientific medicine in this country. The Laryngological, Otological, Ophthalmological, and Surgical Associations have been long enough in existence to convince the most sceptical that the union of men for special study and deliberation is in the highest degree advantageous to our common profession. The formation of the Association of American Physicians completes the circle of these special societies, and will be a meeting ground for the clinicians and pathologists which they have not heretofore possessed.

Though the meeting was primarily for organization, the report which will be found below shows that a rich programme was provided by the committee. The papers and discussions will command general attention, and, with one or two exceptions, were of a character in every way suitable to the occasion. Among them will be found several remarkable and valuable contributions to clinical medicine and pathology. The Association may confidently look to the future, success is assured after such a meeting, and the men in charge are earnest workers from whom the profession of the country may expect an annual contribution worthy of American medicine.

SOCIETY PROCEEDINGS.

ASSOCIATION OF AMERICAN PHYSICIANS.

First Annual Meeting, held at Washington, D. C., June 17 and 18, 1886.

(Specially reported for THE MEDICAL NEWS.)

THURSDAY, JUNE 17TH.—FIRST DAY.

MORNING SESSION.

THE Association met in the Army Museum Building, at 10 o'clock.

The meeting was opened by an address by the TEMPORARY CHAIRMAN, FRANCIS DELAFIELD, M.D., of New York. After a few introductory remarks, in which he said that the object of such an Association as this was not so much to teach as to learn, he took

CHRONIC CATARRHAL GASTRITIS

for the subject of his address. The lining membrane of the stomach consists in part of a mucous membrane, and in part of an apparatus for digestion. So far as the mucous membrane is concerned, it is subject to the same diseases as other mucous membranes, and the same general laws which prevail in all chronic diseases of mucous membranes, as of the eye, the nose, pharynx, larynx, etc., are applicable to it. There may be changes in structure, in function, and in size, and yet, so long as there is no new growth, the membrane may return to a healthy condition; and it must be remembered that severe symptoms may be present without the presence of sufficient change in the mucous membrane to prevent recovery.

The causes of chronic gastritis are very often repeated attacks of the acute disease, the chronic symptoms ap-

pearing some time after the acute attack has passed off. It may follow from venous congestion, as in heart disease, or be brought on like catarrhs of other mucous membranes, by changes in climate. It is also occasioned by individual diathesis, such as rheumatism or gout, by chronic and wasting diseases, as tuberculosis and cancer, it also accompanies various forms of anæmia and exhaustion of the vital powers, and may be occasioned by the ingestion of poisons. It is also caused by duodenitis and by typhoid or malarial fevers, pregnancy, and alcoholism. It is accompanied by changes in function, there may be too much mucus secreted or too little, or the secretion may be wrong in quality.

There is no necessary connection between the amount of pain and the seriousness of the lesions. The symptoms are developed in successive attacks, and the course of the disease is long and irregular, and every year it is liable to get worse. In some cases the patients are uncomfortable during a certain part of each year. In others there is such great pain on the ingestion of even a small portion of food as to lead to the morphia habit; the patient seems unable to eat anything. Instead of severe pain there may be simple uneasiness and discomfort after food. It is hard to distinguish this from pain in the intestine. Not infrequently continued vomiting follows the pain, until the stomach is entirely empty. The nausea is most apt to occur in the morning. The matter vomited may consist of food or large quantities of brownish fluid, mucus, or water. These last are generally connected with dilatation. In some cases there is a great narrowing of the pyloric orifice, causing retention of matter in the stomach and generally accompanied by dilatation. Constipation may depend on this, as may also diarrhœa. There is generally headache and loss of health. Inflammation of the papillæ of the tongue is observed, and there may be abnormal sensations in the fauces. In complicated cases other symptoms will appear.

In most cases the inflammation goes no further than to affect the functions of the glands. A change in the character of the secretion is constantly present. We generally find increase of mucous pigmentation. There is sometimes increase of tissue, and the presence of polypi and constriction of the pylorus. The peptic glands are sometimes affected. We must remember that all gastric symptoms are not due to gastritis—they are sometimes due to anæmia, uterine diseases, and to changes caused by old age.

In many cases palliative treatment is all that can be employed. This is true of those cases dependent on cardiac disease, phthisis, or alcoholism, also when there has been destruction of the glands. These measures are often productive of very great relief. There are other cases, however, which may be cured. In undertaking curative treatment, we must remember that it must be long continued, and that as the patient is liable to repeated exacerbations of the symptoms, the treatment also must be renewed. There are four lines on which treatment may be conducted: 1st, relating to climate and mode of life. 2d, by diet. 3d, by general medicine. 4th, by local remedies applied directly. The most certain of these is the climatic treatment. No rules can be laid down as to the localities to be chosen.

The tastes of the patient may be largely followed, with the proviso that he shall be able to spend a large part of the time out of doors. In order to derive much benefit, however, from this method, the patient must be able to spend either several years at the place or a large part of each year, and this fact alone greatly limits its application.

The diet is always important, but in deciding what diet to give each patient, it is not safe to trust to the patient's ideas as to what does or does not suit him. The only safe method is by experiment. Several hours after eating let the patient's stomach be washed out, in order to see how far the food has been digested. Patients should be well fed, for the stomach does not need rest, as is generally supposed. Artificially digested food and pepsin are unnecessary. Starchy foods are bad. Milk is an uncertain food for adults; sometimes agreeing, and sometimes not. Fruit is good, but the kind of fruit can only be selected by experiment. Meat is generally good. But the diet alone is insufficient for a cure. Drugs often palliate early in the disease, but become of less and less avail as it advances. Dr. Delafield then ran over the usual well-known remedies, such as soda, bismuth, iodoform, etc., and said, if these do not avail, we need not look further.

To those who cannot leave home, local applications are the most useful agents that we can employ. They are applied by means of a soft rubber tube, passed into the stomach through the mouth, and are to be made thoroughly at a time sufficiently long after eating for the stomach to be nearly empty. Warm water alone is the substance most usually successful, though active medicinal agents, such as alkalies or acids, etc., may at times be added with advantage. For the first week of the treatment the diet should be exclusively of milk. This can be borne even by persons who are not usually able to take milk. Afterward one solid meal of meat may be allowed each day. This is gradually increased by vegetables, and finally the other two meals may be added. Expect no improvement for the first week, but it will soon begin. The general health and spirits will greatly improve, as well as the strength. The pain is the symptom which persists longest. The treatment must be continued by the physician himself for two or three months, after which the patient will be able to use the tube himself, and can do it first three times a week at home, gradually decreasing to once a week, when the cure is complete.

THE CHAIRMAN then called for the

REPORT OF THE COMMITTEE ON PERMANENT ORGANIZATION.

The Committee reported a draft of the Constitution and By-laws, which, after a general discussion, were, with a few alterations, adopted as reported.

A committee on nominations for permanent officers was then appointed.

DR. S. WEIR MITCHELL, of Philadelphia, then read a paper prepared in conjunction with DR. MORRIS J. LEWIS, of the same city, on

KNEE-JERK AND MUSCLE-JERK IN DISEASE,

which will appear in *The American Journal of the Medical Sciences*. Dr. Mitchell spoke of the fact that the tendon-jerk is increased if the patient be instructed to perform some voluntary muscular action in a distant part of the body, such as clinching his fist, or, still better, phonating. The same effect will be produced if

a strong impression, such as would be caused by a rhigoline jet on some part of the skin, is produced. In such cases the jerk caused by a blow upon the knee is equal to that observed in cases of extreme lateral sclerosis of the spinal cord. If the belly of a muscle be sharply struck, its fibres will contract, so that we thus have the muscle-jerk, as we have the tendon-jerk. If the connection with the spinal cord be cut off, there is no response on striking the tendon; but the muscle will continue to respond, owing to its intrinsic power of irritability.

The response is a measure of tone. Tone means the steady nerve influence which flows from the spinal column. The tone is increased by voluntary action in a distant part of the body. In every act of the will that causes movement of a certain part of the body, the force does not confine itself to the part directly acted upon by the will, but there is an addition to the nerve force all over the body. This is noticeable in childhood, where we see the individual, in attempting to perform one muscular movement, perform others at the same time. As we grow older we obtain the power of regulating our actions, but even adults are unable to move certain muscles alone. The same facts are often illustrated in disease, as when a patient is asked to close one hand, there is an immediate attempt at closing both, or one leg is moved at the same time. Nerve force flows incessantly to the muscles. A single violent act tones up the system, as in a fight, for example. A torpid bladder will thus act after a cold bath. In cases of enfeeblement this action is less; also on damp days the response is diminished.

He then explained how he had been able to measure by inches the ability of patients to stand with their feet close together and eyes shut, without much swaying. The normal man sways first to the right side, then forward. The first is by measurement half an inch, the second three-quarters of an inch.

What is needed is some test to show the first beginnings of spinal disease. Strabismus and knee-jerk, early as they occur, are too late. The arm is a far better part to study, as the lower extremities are attacked first.

He then showed a table divided, according to the patient's power of standing, into five divisions. In the first class, where their standing was normal, the muscle- and tendon-jerk was normal, and the reinforcement normal; in the second and third class the jerk was irregular, sometimes normal, sometimes increased, sometimes diminished; in the third there was no reinforcement; in the fourth the jerk was decided, but no reinforcement; in the fifth both were lost. Chin-jerk was sometimes normal, and sometimes absent.

Associated movements were noticed—*i. e.*, the involuntary action of one part of the body accompanied the voluntary action of another part. Hearing was generally lessened. Prominence of the eyes, a new symptom, was observed in a certain proportion of cases.

DR. E. C. SEGUIN, of New York, considered the action described under the names tendon-jerk and muscle-jerk to be caused by reflex action, as contradistinguished from voluntary action. He doubted the correctness of the explanation that the reinforcement of the jerk by distant muscular movement is on account of an increase of the tone due to volitional action. The explanation he would give would be that the voluntary action had the effect of inhibiting the cerebral influence, and that thereby the spinal influence was increased. This view is supported by the fact that the jerk is increased in cases where part of the cortical substance of the brain is destroyed, and also in persons suffering from cerebral neurasthenia.

DR. JAMES J. PUTNAM, of Boston, could not accept Dr. Mitchell's conclusion, but thought it a good deal a matter of words whether we say the jerk is due to reflex action or to increase of tone. The method of estimating the station of patient used by Dr. Mitchell is good. He spoke of a method of estimating the condition of the arm. A yardstick is used with a slide. The experiment is to let the slide be placed on a given part of the stick and the patient see it there. Then let him close his eyes and move the slide, and then return it to its original position. His accuracy in replacing it will be the test. A similar experiment may be tried by letting the patient see two chalk-marks on the blackboard, and then attempt to reproduce them in their relative positions with his eyes shut. He asked, in conclusion, whether the associated movements spoken of by Dr. Mitchell were not similar to choreic movements observed in some subjects when their eyes are closed.

DR. H. C. WOOD, of Philadelphia, said that the difference is not a matter of words, but depends on our physiological ideas as to whether there are two kinds of action in the striated muscles, viz., voluntary and reflex, or whether there are three, viz., these two and an action originating in the muscles or the nerve-endings in muscles. He himself believed in the latter theory. He referred to the fact that under certain poisons the response of the muscle is altered. Thus in a veratrized animal the response is very different from that observed in a normal animal. It is, of course, possible that the third class may be affected by cerebral inhibition, as Dr. Seguin had said, but of this there is no proof.

DR. MITCHELL, in reply, agreed with Dr. Wood. While it is true that most of the facts can be explained on the theory of inhibition, all cannot be. The overflow theory which he had been advocating explained more facts than the inhibition theory. In conclusion, he said that the associated movements are entirely different from the choreic.

DR. F. PEYRE PORCHER, of Charleston, S. C., then read a paper on

TYPHOID FEVER.

He explained that he would confine himself to the therapeutics of the disease, and chiefly dwell on his own experience. Although he had had an extensive experience in hospitals, he would confine himself to his private practice. It is of the first importance to be able to secure a low rate of mortality from typhoid fever. It is a great mistake to trust simply to statistics of the death-rate following any prescribed course of treatment. This is specially true of hospital statistics. They are, in typhoid fever, untrustworthy, as the patient is apt to come in at an advanced stage of the disease, and there are a variety of other causes which serve to vitiate the returns. In all cases, the surrounding circumstances of each patient must be taken into consideration in order to weigh the value of the statistics. He considered that the plan of treatment he had adopted was worthy of

careful consideration, inasmuch as he had lost but three cases, which amounted to a fraction over nine per cent. of all he had treated. A mortality of less than ten per cent. may be considered a standard of excellence in typhoid fever.

He had observed that all fevers are ushered in by costiveness; there is apt also to be a certain amount of anxiety in the patient's mind—it is possible that this may, in nervous cases, cause diarrhœa, though he had not noticed it; but it is sufficient generally to cause a dryness in the mouth. That anxiety has this effect is well known, and is made use of in India for the detection of theft: suspected persons are given dry rice to chew and spit out; the rice is afterward examined, and the guilty person detected by the dryness of the rice which he has chewed. A mild laxative at the commencement of the disease, preferably a mercurial, is generally useful. Stimulants are important for temporary support where there is much exhaustion; as high temperature is an element of extreme danger, antipyretics internally and externally are most important. The method he uses externally is to apply ice-cold water to the head, hands, and arms systematically. He applies a soft towel, soaked in the water, to the head, and frequently changes it. By another towel the ice-water is sprinkled on the arms; sometimes the hands and arms may be immersed. This should be continued fifteen, twenty, or thirty minutes at a time, or until the surface is cool. The advantage of this method over the wet pack or cold bath is, that it is easily used and not liable to abuse. It is not opposed to popular feeling as are the other methods, and will be therefore willingly applied by the attendants and submitted to by the patient. It is very effective in all cases of continued fever in reducing the temperature. In malarial fever he has seen it bring down a temperature of 107° and 108° F. Sponging the lower extremities with alcohol and water is sometimes very soothing. Besides the sponging, he uses a fever mixture containing sweet spirits of nitre, aconite, spirits of Mindererus, and acetate of potash, which he has found most effective.

In cases complicated with malaria, he makes use of quinine and arsenic, but does not endorse the large doses of quinine frequently given. His experience is that the alkaline treatment is indicated in the early part of the disease, and that acids are more valuable later. Sordes on the tongue and delirium are indications for free stimulation; in delirium he has also found cantharides to the back of the neck very useful. In treating the accidents occurring in the course of typhoid fever, the employment of turpentine, inwardly and externally, is the best remedy for tympanites. It is a general and special stimulant and styptic. Rubbed up with mucilage and given in connection with the carbonate and muriate of ammonium, it is invaluable in the broncho-pneumonia which may occur in the course of typhoid fever. In this condition he uses with great advantage cotton-batting with oiled silk to cover the entire chest. When albuminuria occurs, he administers quinine and tannin in doses of two grains each three times a day. For nausea, he employs small doses of ipecac. He has seen carbolic acid and tincture of iodine reduce the temperature, but has no reason to believe that they have any influence in cutting short the disease.

DR. JAMES TYSON, of Philadelphia, said that he had found that where it was necessary to keep up a continued antipyretic effect the purpose was best subserved by the use of cold water externally. This he applied by means of towels dipped in ice water and wrapped about the trunk of the patient. Antipyrin is good, but it causes chilliness and chattering, which have a bad moral effect on the patient and his attendants, and small doses soon lose their effect. He had employed thallin in four grain doses with the effect of reducing the temperature two and a half degrees in half an hour; but with the same objectionable chilliness and chattering following. The same medicine had been repeated in half the dose with the same good result and without the unpleasant effects, but its influence was very transient. All these points were illustrated in a case which had recently came under his observation which he related. He considered antipyrin and thallin invaluable for the reduction of temperature except in cases where a continued antipyretic influence is required, and then he prefers the external use of cold water.

DR. J. T. WHITTAKER, of Cincinnati, considered elevation of temperature nature's remedy to get rid of the cause of the disease. It is now pretty clearly demonstrated that the disease is caused by a bacillus. We must attribute changes that occur in the disease to the cause and not to the heat of the body.

DR. F. T. MILES, of Baltimore, called attention to the fact that in some cases the disease runs its course with a normal or even subnormal temperature.

DR. E. DARWIN HUDSON, of New York, believed the best method of treatment is in many respects a negative one, the poor are more likely to get well than the rich. The treatment he endorsed consisted in sponging the body every two hours with water whenever the temperature rose to 102° F. He keeps the patient with a rubber cloth under him and a wet sheet above him. It is his custom to employ an exclusively milk diet, which he considers of itself of wonderful value, and continues it on into convalescence.

DR. S. C. CHEW, of Baltimore, said he could hardly consider that the treatment ust described was negative, since, although Dr. Hudson did not employ ice water, the temperature of the water was still lower than that of the body. Antipyretic treatment is extremely important even though the bacillus theory be admitted. He considered quinine, given hypodermically, almost a specific as an antipyretic, having far more influence administered in that way than when given by the mouth, just as morphia has a more positive effect when administered hypodermically. He uses quinine in the form of the hydrobromate so prepared that twenty minims represent four grains.

DR. FREDERICK P. HENRY, of Philadelphia, said that having read reports of the very remarkably favorable results from the use of Labbaraque's solution, he had tried it in twenty-six cases at the Philadelphia Hospital, and lost four cases, which was a very high percentage. He had also more relapses from its use than is usually observed. He thought the high claims put forward for certain special methods of treatment often misleading. Referring to Dr. Chew's remarks on the value of quinine hypodermically as an antipyretic, he said that he could readily understood that its effect might be increased by that method of employment.

We know it is the case with bichloride of mercury, that its action in certain syphilitic skin diseases is greatly intensified by being administered hypodermically.

DR. W. H. DRAPER, of New York, believes that nothing is more fallacious than mortality statistics in typhoid fever, as false cases are often reckoned in and so vitiate the result. Cases where a high temperature is not reached should not be considered. It is very easy to overestimate the value of antipyretics in typhoid fever and continued fevers generally. Where there is continued hyperpyrexia the cases generally prove fatal in spite of antipyretics. The value of this class of drugs is that they contribute to the comfort of the patient. They do not materially lessen the death-rate.

DR. WILLIAM PEPPER, of Philadelphia, said that he wished this Association would turn its attention to the collection of carefully prepared statistics on this subject. He quite agreed with those who claimed that in this disease hospital statistics are worthless. This Association is in a position peculiarly fitted to undertake such a task. Every physician will have what might be termed a run of luck in his practice. For a considerable period most of his typhoid patients recover. This will be followed by a run of cases with a large mortality. For himself, he did not consider a death-rate of from ten to fifteen per cent. much below what it would be if no special treatment was instituted, and, therefore, thought that arguments based on methods of treatment showing such a result, fallacious. He believed it a mistake to consider temperature as of great importance in the treatment of typhoid fever. He insisted upon the value of absolute rest and rigid diet. Abstraction of heat is important. Some remedy should be given addressed to the intestinal canal. He could not say which was the best, but his preference was for the salts of silver. Where cases come under care early he did not think that a mortality greater than six per cent. a satisfactory result in private practice.

DR. PORCHER, in conclusion, agreed with Dr. Tyson in his method of treatment on theoretical grounds, but practically it is very difficult to carry it out. In order to wrap wet towels around the trunk of a patient we must remember that it required him to be moved. In typhoid fever, the patient is generally in a very weak condition. Then there is the difficulty of keeping the bedclothes, etc., dry, and we have, as a rule, to combat the strong objection of the patient and his attendants. All these objections were met in his method, and the results were as satisfactory. He was surprised no one had spoken of the value of the fever mixture he had mentioned. How any practitioner could treat typhoid fever without it or something equivalent to it, he did not understand. Some had spoken of the disease running its course without fever. This must be considered as one of the rarest occurrences.

AFTERNOON SESSION.

DR. JAMES TYSON, of Philadelphia, opened the discussion on the question,

DOES THE PRESENT STATE OF OUR KNOWLEDGE JUSTIFY A CLINICAL AND PATHOLOGICAL CORRELATION OF RHEUMATISM, GOUT, DIABETES, AND CHRONIC BRIGHT'S DISEASE.

He stated the prevailing views as to what constitutes each of these diseases.

1. *Rheumatism—i. e.*, articular rheumatism—is a general disease with acute or subacute inflammation of the articular and periarticular tissues in a person possessed of a tendency, hereditary or acquired, thereto. No *materies morbi* that can be held responsible for the disease has been isolated, though there probably exists one. The products of the inflammation are in no way specific.

2. *Gout* is also a general affection with arthritis, especially of the smaller joints. A tendency is likewise necessary for this. Undue accumulation of uric acid in the blood is conceded by most to be responsible for the symptoms. The arthritis is more or less constantly associated with deposits of sodium urate in the joints.

Diabetes mellitus is more difficult to define, but there are at least two quite different varieties pathologically. In both there is a deranged function of the liver, as the result of which the cells are unable to dehydrate glucose into glycogen, but permit it to pass as glucose through the portal vessels, and thence into the general circulation. This is brought about in the milder cases by an over-ingestion of saccharine and amylaceous food, causing exhaustion of the glycogenic function. This form is easily curable by dietetic measures. In the more severe form, which may be termed the neurotic or neurologous form, the dilatation of the hepatic bloodvessels and accelerated movement of the blood are caused by a lesion in a distant part, very frequently in the cerebro-spinal or sympathetic systems. This form is benefited but not cured by dietetic treatment. In many of these cases careful autopsies often fail to discover any lesion.

Bright's disease: We must include here both the interstitial and parenchymatous nephritis, as the former occurs in connection with gout and the latter with rheumatism.

Both rheumatism and gout are arthritic affections, and an essential part of each is an inflammation of the joints, although not joints of the same class. The changes in the joints in rheumatism are not specific, but those in gout are. There is no excess of uric acid or lactic acid in rheumatism, Latham's theory to the contrary notwithstanding. The presence of uric acid in the blood in gout is generally conceded. Heredity, though operative in both rheumatism and gout, is far more operative in the latter. Gout affects those in latter life more generally, while rheumatism is a disease of younger life. Alcoholic liquors, which have no influence on articular rheumatism, are all powerful to produce gout. Insufficiency of food is an etiological factor in rheumatism, but the reverse is true of gout. The rarity of kidney disease in rheumatism and its frequency in gout is a point to be considered. A gouty endocarditis is nothing like so frequent as one of rheumatic origin Again, the skin diseases which are so frequent in gout are not so in rheumatism.

The causes of rheumatism are cold, exposure, etc., while for gout these are not the causes, but a peculiar substance in the blood. Gout also is brought on by errors in food and drink. Atmospheric influences and injuries may be the exciting causes of the attack. If we turn to therapeutics we find that salicylic acid, which is the best remedy for rheumatism, is also useful in gout, but for rheumatism it is almost a specific, as

quinine is for malaria, while in gout its effect is readily understood. It has a direct effect upon the glycogenic function of the liver. It increases the amount of urea in the urine and diminishes uric acid. But with the exception of salicylic acid, the remedies for gout and rheumatism are not the same. Remedies addressed to the liver which are useful in gout, are of no avail in rheumatism, and may even aggravate it. Gout needs eliminative measures, rheumatism constructive. On account of these considerations, we must deny the identity of the two diseases.

The association of gout with contracted kidney is frequent, and here a relation must exist. Uric acid, by its irritating properties, is one of the many causes of contracted kidney. Dr. Tyson illustrated this by the relation of a case.

The relation between gout and the milder form of diabetes is a difficult question. In both the specific gravity of the urine is high. But in gout this is caused by the presence of uric acid and the urates, while in diabetes the amount of water is increased and the uric acid is not increased. It is said that urine in gout and lithæmia has been found to contain sugar. But this statement is made owing to an error arising from the fact that uric acid causes deposits of copper salts. Since Dr. Tyson has ceased using copper salts in testing the urine of gouty patients for sugar he had ceased to find evidences of it. It has been urged that the diet that is good for glycosuria is also good for diabetes. This is true, but the reason for it is different. In gout the indigestion of food is caused by the want of power in the digestive ferments. In diabetes, as has been above explained, the cause is different. On the whole, however, although some of the arguments are wrongly made there is a correlation between gout and the milder form of diabetes, but the relationship is more pathological than clinical.

But the case is different when we come to consider the relationship between the neurogenous or neurotic form of diabetes and gout, for there the cause of the diabetes is not in the liver but in the nerve centres. Diabetes and albuminuria are supposed to be very frequently connected, but the connection is by no means constant in the earlier stages.

There is a true correlation between gout and chronic Bright's disease, but not so in the case of diabetes. Salicylic acid has been found useful in one form of diabetes. The cases where good results have been obtained from its use, however, have been those where diabetes and rheumatism have existed together in the same subject.

In summing up, he said that the conclusions he had arrived at were—

1. Gout and rheumatism resemble each other in that each has a *materies morbi*. But this is not the same for both diseases. The *materies morbi* of gout has been discovered, that of rheumatism is still obscure. But each disease has its own poison.

2. On comparing gout and diabetes in its milder form we find that the liver is affected in both, but in the former case the digestion of the hydrocarbons is at fault, while in the second the power of converting glucose into glycogen is diminished or lost.

3. There is no correlation between gout and severe diabetes.

4. Between diabetes and acute rheumatism there may perhaps be some connection.

But pathology or clinical medicine at the present time fails to show any true correlation between the diseases in question. One of them may be antecedent to the other in the same person, but this does not establish the causal relation between them.

DR. WM. H. DRAPER, of New York, said that we must presume that, however far pathology may be from finding any true correlation between the diseases in question, the very fact that the question had been raised, showed that there must have been something in clinical experience that suggested their relationship. There are investigations in vital chemistry the results of which seem to point to this conclusion, but as yet it would be premature on pathological grounds definitely to decide the question.

As co-referee, he considered the question from a clinical standpoint, and the first step would be to define the sense in which he would use the terms.

1. *Gout:* by this we mean not only an arthritic disease, but a diathesis, which, by changing the nutrition, causes the appearance of a variety of affections.

2. *Diabetes:* the more common and less severe form in which there is an inability to digest food-sugars.

3. *Rheumatism* covers the acute and subacute varieties in which diagnosis from the gout is difficult.

4. *Albuminuria:* that form characterized by the contracted kidney.

Gout, diabetes, rheumatism, and chronic Bright's disease are frequently associated, sometimes in the same person, sometimes in a family; the latter is quite common. They may all exist distinctly in the same person. The question is, Do these facts show that these diseases are correlated? The first clinical fact is heredity; testimony shows that glycosuria has often a gouty ancestry. We must distinguish mild glycosuria from the graver form of diabetes, though this may follow the milder. Even the graver form may have a gouty ancestry. Heredity is not so evident between gout and rheumatism, though acute rheumatism frequently occurs in the children of gouty parents. These cases present all the clinical evidences of rheumatism. Of course, heredity cannot be pleaded in respect to non-allied diseases, but in the present case the analogy is singular. Besides this we must remember that the milder forms of rheumatism are not to be used to estimate heredity. On the other hand, Hutchinson tells us that crippling and gonorrhœal rheumatism recognize a gouty ancestry. Chronic interstitial nephritis is observed in gouty families. These diseases are associated with similar nutritive changes. Physiological investigation shows diminished power of digesting the carbohydrates. The intolerance of these in gouty subjects has been too much overlooked. The connection one with another as shown by treatment is strong, the administration of alkaline salts whether in mineral water or not is important in all. The reputation that various springs in Europe have in the treatment of all these disorders would seem to indicate a connection between them, though their value is not so great in rheumatism. Besides this, salicylic acid, which is so valuable in rheumatism and gout, and also, though in a less degree, in diabetes, suggests the same idea. All these considerations are open to criticism, but they inevitably excite a suspicion of an alliance between the diseases.

Pathologically, however, they must each still be considered more or less distinct and specific.

DR. J. T. DANA, of Portland, Maine, asked whether it would not be well to extend the question under discussion so as to include rheumatoid arthritis. The differentiation between this and gout and rheumatism had been fully made out by Dr. R. P. Howard, of Montreal, Does not this affection require correlation with the others mentioned in the question as much as any one of them ?

DR. E. G. JANEWAY, of New York, thought it necessary to be very careful how we take the opinions of English authorities on the subject of the hereditary influence of gout, for the English are a gouty people and, therefore, to English observers gout might seem to have a relation to diseases that are in no way allied to it. The same apparent relation is not found if the history of people of other countries is examined. He called attention to the fact of the great prevalence of diabetes among the Hebrews, while gout is not frequent among them. This would not be the case if the conclusions of English observers were correct. In the examination of diabetic urine for albumen, we must remember that in a certain proportion of cases its presence does not denote renal disease, but may be due to the presence of mucus secreted by the mucous membrane of the bladder and meatus irritated by the excess of uric acid.

DR. FREDERICK C. SHATTUCK, of Boston, corroborated Dr. Janeway's statement of the frequency of diabetes amongst Hebrews.

DR. ALFRED L. LOOMIS, of New York, said that pathologically the diseases are not directly correlated, but clinically it would be difficult to divest one's mind of the idea of correlation. The clinical connection between them is so striking ; they touch each other in so many points, and they so often coalesce, that one is almost compelled to admit their close relationship. Dr. Loomis related a case of a man, sixty-three years of age, who was first attacked with gout at the age of forty-two. The attacks recurred at intervals till he was sixty. Frequent examinations of his urine gave negative results except that there was a high specific gravity and a quantity of urates. After a severe attack in his sixtieth year sugar appeared in his urine. This continued for six months, when it disappeared, and since then albumen has been present. Another case was that of a man, sixty-five years of age, who had had frequent attacks of gout and rheumatism for ten years. Between the attacks sugar was found in the urine, but was absent during the attacks. Albumen was at times noticed, but it was not constantly present. During this period he has had gradually increased arterial tension and cardiac hypertrophy. During the last six months the tension has diminished and the hypertrophy has given place to dilatation.

A third case was that of a gentleman who had enjoyed excellent health till he was fifty years of age. At that time, after intense business strain, the urine was largely increased in quantity and sugar was found in it. He was improved by travel in Europe and a restricted diet. He still restricted his diet after his return, but the sugar persisted and increased in amount. In February last, he had a well-marked attack of gout, and in a month after albuminuria appeared, and he now has anasarca.

Such cases are not very unusual, and they lead us to the belief of their correlation. They are constantly alike in the presence of anæmia, cardiac affections, digestive difficulties, and nervous symptoms. Interstitial nephritis and gout are surely correlated ; the former is often the last link in the chain. The changes in the vessels of the kidney are due to prior changes in the blood.

DR. H. C. WOOD, of Philadelphia, said that in regard to rheumatism and gout, it was his experience that they are the same disease. It is impossible to make out a clean differential diagnosis between them. In his own family his great grandfather had had gout. He did not know how it was with his grandmother, but all her brothers and sisters had suffered from it. It appeared in the next generation. He himself suffered from chronic rheumatism. Another member of the family had had six attacks of inflammatory rheumatism in as many years, another was attacked for the first time at thirty years of age, and so on. How can pleurodynia be separated from gout ? As to the prevalence of gout in England vitiating the observations of English authorities, those books might just as well have been written in Philadelphia, for gout is as prevalent there as in England.

DR. PEPPER, of Philadelphia, thought that the clinical evidence in the case is too strong to be overlooked. We must wait for the revelations of vital chemistry to show us just how these diseases are correlated. In the meantime we must take care not to mistake an accidental for a real connection. Both rheumatism and Bright's disease are so very common that they might readily occur in the same family without correlation. Still the evidence is in favor of their bearing a relation with one another. Dr. Draper had done well to extend our view of the subject of gout beyond the attacks of arthritis to the gouty diathesis. By this means we get a much truer view of the matter in question. In regard to the Hebrews, it is quite true that they are liable to diabetes, but while they are not so subject to the arthritic form of gout, they are to lithæmia. The question of the occurrence of the arthritic trouble rests upon peculiar local conditions. Certain persons are born with a tendency that causes the disease to assume that form.

In rheumatoid arthritis the nervous element is largely prominent. The nervous system may be at the root of, and be the real cause of all these disorders. He did not consider that the theory put forward by Dr. Janeway, that of irritation of the mucous membrane of the bladder and meatus, was sufficient to explain the occurrence of albumen in the urine in diabetes.

DR. JANEWAY explained that he had referred only to a certain class of cases when he made the statement referred to.

DR. A. JACOBI, of New York, thought that the fact that we have to use the term rheumatic arthritis, of itself shows the limitations of our knowledge, beyond which we cannot go. He illustrated the limitation of our knowledge by citing other allied diseases. The transient forms of glycosuria are much benefited by salicylic acid. This drug increases and liquefies the bile, and diminishes the deposit of gall-stones. The people who are affected in this way are often fat, are anæmic, and frequently of the Hebrew race. If these eat and drink too

freely, we not only find a high specific gravity, but sugar in their urine. Sometimes it persists for a considerable period. Between true diabetes of the severe form and true gout, he saw no connection. We must remember that Bright's disease, and gout, also, are very common after forty years of age.

DR. DRAPER, in conclusion, said, in reply to Dr. Dana's question, that he considered rheumatoid arthritis as of gouty origin in the larger signification of that term. We must not accept the statement of patients, that they or their families are free from gout, for the meaning they attach to the term is simply of the acute disease in the joints. They may have lithæmia without this. We have too much limited gout by insisting on the deposit of uric acid in the joints. This is, after all, only an epiphenomenon of the disease. Let us enlarge our definition of gout.

His experience did not accord with Dr. Janeway's as to the prevalence of diabetes among the Hebrews. He had at this time a case of persistent diabetes in a Jewess. The family was gouty, and two of the brothers diabetic. He thought Dr. Wood was correct in regard to the difficulty of diagnosis between gout and rheumatism. He would be glad to hear from any physician present who was always able to diagnosticate between the two. In conclusion, he would add that the correlation between these diseases must yet be determined; their connection is a matter of constant clinical observation.

DR. J. T. WHITTAKER, of Cincinnati, then read a paper on

SPASM OF THE LARYNX IN RICKETS.

He stated that, while the connection between rickets and spasm of the larynx was probably well known to the audience he was addressing, the profession generally in America, as a whole, attach little importance to it. He had come to this conclusion by examining some of the more popular text-books in use in America and England. In contrast to this, he compared the amount of space devoted to this subject in German medical works.

The occurrence of spasm of the larynx in young children is of itself sufficient to excite a suspicion of rickets, even though the other usual signs of the disease be absent or difficult of detection. The spasm is observed more in the earlier stages of the malady, and is more frequent in the acute form with intensity of progress. On the other hand, where the development of the disease is more gradual, there may be no attacks of spasm whatever.

The attempt to settle the pathology of rickets is attended with difficulty. High latitudes and great elevations seem to afford exemption, despite unhygienic surroundings and bad food. Dr. Whittaker was inclined to the view that the disease is to be classed among the infectious diseases. The character of the spasms is tonic and direct. They may occur at any time of the day, and may be brought on by some exciting cause, such as laughing, crying, or swallowing. It is not necessary that there should be any local lesion whatever. The general treatment is best carried out by attending to the rickets; as this improves, the spasms diminish and cease. An illustrative case was given of a male child of a year old, that had been affected with laryngeal spasm for three months. It had been fed with cream since it was six months old; was subject to sweatings, and there was some deformity of the legs. On attempting to examine the throat laryngoscopically, a most frightful spasm came on, accompanied by complete closure of the glottis, and reaching to both extremities and trunk, and amounting to opisthotonos. He thought the child was dead, but it was finally restored. He ordered it to be kept quiet in its baby-carriage and wheeled about, and that it wear only a very light slip which could be easily pulled up or torn off; and gave directions that at the first symptom of spasm, it should be flagellated in front with a wet towel. He put it on a milk diet and ordered cod-liver oil, the hypophosphites, and other remedies addressed to the rickets. The child rapidly recovered. In cases of this kind, he considered that flagellation is the only remedy; tracheotomy would be of no avail, and anæsthetics would be useless on account of the fact that the child is unable to breathe during the spasm, and as soon as it can breathe the danger is over.

DR. JACOBI, of New York, referred to several contributions that he himself had made to American medical literature during the past thirty years, in which he had dwelt very largely and fully on the fact that spasm of the larynx in children generally depends upon rickets. It is seldom in children the result of nasal irritation, since they so often get well without any treatment addressed to the nose. Some have considered the cause to be a hypertrophied thymus gland, but it is difficult to say just what this is, as the gland has often been found enlarged where there has been no spasm. The gland is found enlarged in rickets. The disease may be only a spastic contraction of the larynx, and then simply a crowing sound, sometimes ending in a convulsion, is observed. When the spasm is fully developed it is generally only the second stage of a temporary paralysis. The child will be first excited then paralyzed; unable to breathe, it becomes pale and blue and may die. If not, the spasm will end with a crow. Rickets is the cause of forty-nine out of fifty such cases. In most of them the cranium is found as full of blood as the other bones. There may be meningitic effusion and the encephalic hyperæmia is the immediate cause of the spasm. Hygienic treatment is of the greatest importance. If you have six weeks in which to act, the child will almost certainly recover; but it must be remembered that at any moment during those six weeks it may die in a spasm of the larynx.

DR. OSLER, of Philadelphia, said that whatever might be the case with English text-books, he could testify, from personal experience, that the close connection between rickets and spasm of the larynx is strongly emphasized in the English schools.

DR. PEPPER, of Philadelphia, related the case of a baby nine weeks old suffering with whooping-cough, who had on several occasions been so deeply asphyxiated as to be apparently dead. A very small amount of nitrite of amyl had relieved and cured the child. It was first used pure, afterward in the proportion of one part of amyl to nine parts of sulphuric ether.

DR. JACOBI thought the good effect in this case was caused by the diminution of blood pressure in the brain, just as nitroglycerine has been found useful in subduing the inflammation in hydrocephalus.

DR. WHITTAKER, in conclusion, stated that he had

not omitted to read Dr. Jacobi's articles. Without a knowledge of these no one could be considered acquainted with the literature of the subject. Whatever may be the views of English physicians, their text-books do not lay stress on the connection between rickets and spasm of the larynx. He did not understand how nitrite of amyl had answered in Dr. Pepper's case unless it had been by diffusion, as the patient was not breathing.

Dr. E. T. Bruen, of Philadelphia, then read

NOTES ON SOME CASES OF DIAPHRAGMATIC PLEURISY.

The diagnosis is often only established at the post-mortem, since the process is often latent and frequently possesses few distinctive physical signs. Primitive pleurisy of this part of the pleura he considers rare. It is oftener a complication attendant upon acute inflammatory processes in the adjacent pulmonary lobes, the costoparietal pleura, or in the liver or peritoneum. Such invasion of the diaphragmatic pleura may be characterized by special symptoms entitling one to designate this class of cases as acute inflammation of the diaphragmatic pleura.

Again, it may be a subacute or chronic process, developed in consequence of contiguous subacute or chronic inflammation, or malignant growths. In such cases the process in the diaphragmatic pleura may become specialized by symptoms which should differentiate the diaphragmatic pleurisy from the associated pathological changes.

In its acute form many of the symptoms may be masked by the greater importance of the primary disease.

A case of croupous pneumonia of the right lung, complicated on the fifteenth day with diaphragmatic pleurisy, was related. The diagnosis was confirmed by autopsy on the twenty-fifth day after the illness commenced. The patient was delirious, yet many of the characteristic symptoms were present in this case.

Enlarged liver, or intestines distended with gas may mask the lesion by interfering with the movement of the diaphragm, and thus simulate an important symptom of diaphragmatic pleurisy. Diaphragmatic pleurisy is generally right-sided; the termination of acute cases will largely depend upon the associated diseases. In primary cases recovery is possible. Diaphragmatic pleurisy may progress to a marked degree without diagnostic symptoms, and a case illustrative of this was related. In subacute or chronic cases special symptoms are more conspicuous than in many of the acute forms.

The diagnosis of this disease must necessarily be difficult. Autopsies show that the process can exist in an advanced form, at least on one side of the diaphragm, without special symptoms. If diaphragmatic pleurisy complicate any form of pulmonary disease, or pathological process in the liver, or circumscribed peritonitis of the superior part of the abdominal cavity, the occurrence of respiratory distress disproportionate to those conditions, would point to the possibility of its existence. More important diagnostic symptoms are: Subjective sensation of pain over the zone which borders the diaphragmatic plane; pain on pressure one or two fingers' breadth from the middle line on a level with the tenth rib, or at the intersection of a line drawn from the osseous part of the tenth rib and one drawn along the sternum. The pains may be constant but also paroxysmal, or evoked by pressure, by deep breathing, irritation of the diaphragm, swallowing, vomiting, or pressure of distended abdominal organs. There may be pains around the chest and upper abdominal zone; fixation of the diaphragm, and the enforced thoracic character of the breathing, are important signs. The respiratory murmur is generally either feeble or absent near the diaphragmatic zone. Dry or moist friction râles may be heard along the convex surface of the diaphragmatic pleura. Dulness on percussion may be present, but a tympanitic sound is more frequent. The patient may bend forward with hypochondriac retraction and epigastric hollowness, but he often lies on his back. Respiration is often, but not uniformly, greatly increased; cough and hiccough are variable signs. There is oftener a thickening of the pleura with adhesions than much fluid exudation. Differential diagnosis must be made between this and costoparietal pleurisy, processes in the liver, pulmonary lobes, or pericardial sac; also, perihepatatis and circumscribed peritonitis, gastric ulcer, and gall-stone must be excluded, as well as rheumatism of the diaphragm and chronic pericarditis. The prognosis depends upon the intercurrent pathological processes, and the powers of adaptation of the pulmonary system are so great that the duration, even of double diaphragmatic pleurisy, may be indefinite.

Dr. T. Mitchell Prudden, of New York, then gave a

DEMONSTRATION OF BACTERIAL CULTURES FROM A CASE OF MYCOTIC ENDOCARDITIS IN A MAN, AND OF SPECIMENS SHOWING THE EXPERIMENTAL PRODUCTION OF THE DISEASE IN RABBITS.

This demonstration, he said, was in the nature of a preliminary communication on some experiments not yet quite completed. The presence of bacteria has been for some time observed in the cardiac and in the peripheral lesions of certain cases of malignant ulcerative endocarditis. The organisms are for the most part sphærobacteria, and the embolic lesions, when such exists, usually harbor similar forms. But it must be remembered that even when extensive ulcerations have taken place the bacteria may not be present. The gross signs are very deceptive. After quoting authorities Dr. Prudden stated that out of eleven cases which he had carefully studied within the past four years, with the improved method of staining, only four showed the presence of bacteria.

The only case of malignant ulcerative endocarditis from which he had been able to isolate and study the living bacteria, was one of pyæmia following an operation for club-foot. In this case there was a moderate degree of old thickening of the mitral and tricuspid valves, while superimposed on this were fresh ulcers with necrotic bases and red and white thrombi. There were multiple abscesses in the kidney, softened impactions in the liver and spleen, and infecting emboli in the brain. All these lesions harbored large numbers of sphærobacteria. Dr. Prudden had succeeded in isolating these living organisms, and described how they are cultivated. Subcutaneous injections of the pure cultures in rabbits produced abscesses. Peritoneal and pleural injections caused illness, but all the animals ultimately recovered.

By accident a colleague of his was inoculated in the finger. An abscess was the result, with considerable constitutional symptoms and general swelling and tenderness of the lymphatic glands. The abscess being opened, discharged about an ounce of pus, from which the same bacteria were readily cultivated. The bacterium just described is the *staphylococcus pyogenes aureus*.

Dr. Prudden then briefly described the results obtained by European observers, and the methods he himself had employed. It has been found that it is possible to introduce a glass rod into the aorta of a rabbit, push it down to the aortic valves, and punch a hole in one of the cusps of the valves, without any other local reaction beyond an occasional slight deposit of fibrin about the puncture. If done antiseptically and the wound closed at once, the animal recovers in a few hours, and lives on indefinitely. A murmur is at once produced. If pure cultures of the staphylococcus pyogenes aureus be injected into the ear-vein of a rabbit in considerable quantities, death usually follows, and we find multiple abscesses in the spleen, liver, kidneys, and sometimes in the heart-wall and lungs. But endocardial lesions are not produced; but if an injury to the endocardium be first produced, as above described, lesions similar to those of malignant ulcerative endocarditis are found at and near the seat of injury. Lesions are also found in the carotid and the aorta when these have been injured by the probe. Abscesses in the liver, spleen, kidneys, and heart are the most frequent peripheral lesions. Dr. Prudden had varied the preliminary operation by arming the point of the probe with a fused mixture of silver and potassium. By covering these with a thin coating of sugar, and passing it down the right jugular vein, the point of the probe may be brought to any desired position before the sugar dissolves, and the caustic may be rubbed against the endocardium at any point of the right auricle or ventricle. A small thrombus usually forms at the point of contact with the silver salt; the bacteria are found in it. The peripheral lesions are similar, except that hemorrhages and abscesses of the lungs are more frequent. He then proceeded to describe the experiments of European operators with the similar bacteria, and with the coccus sepsis of Nicolaier, the bacillus pneumonide of Friedländer, and the streptococcus pyogenes and staphylococcus pyogenes albus.

The results were: 1. That by the intravenous injection of either of these species, or a mixture of them, into the rabbit after an injury to the pericardium, lesions can be induced strictly analogous to those found in malignant ulcerative endocarditis in man. 2. That the coccus sepsis of Nicolaier will, under similar conditions, produce similar effects. 3. That the bacillus pneumonide of Friedländer, and micrococcus tetragenus, under the same conditions do not produce similar results.

Finally, Ribbert has shown that a preliminary mechanical injury to the endocardium is not indispensable to these results. If from a potato-culture part of the potato be scraped off with the bacteria and injected, fragments of the potato seem to serve the same purpose as the preliminary injury to the pericardium.

It is to be noted that neither the pericardial injury alone nor intravenous injection of bacteria alone is sufficient to induce the cardiac lesion, but both are necessary.

Malignant ulcerative endocarditis, then, would seem to be one of the forms of pyæmic lesion determined by the predisposing condition of the endocardium.

RHODE ISLAND MEDICAL SOCIETY.

Seventy-fifth Annual Meeting, held at Providence, June 10, 1886.

THE President, Dr. Oliver C. Wiggin, being absent, the Chair was occupied by the VICE-PRESIDENT, DR. HORACE G. MILLER.

The Secretary, Dr. G. D. Hersey, read his annual report, showing the present membership of the Society to be 198.

THE REPORT OF THE TRUSTEES OF THE FISKE PRIZE FUND

was presented. Two prizes, of $200 each, were awarded as follows: (1) To Dr. Charles V. Chapin, of Providence, for the best essay on "Methods of Treatment and Practical Results of Malarial Diseases in New England." (2) To Dr. Hobart Amory Hare, of Philadelphia, for the best essay on "New Methods and Modified Forms of Disease, due to Progress of Modern Civilization in the Last Half Century."

Two prizes, of $200 each, were announced for the ensuing year, to be awarded for the best two essays on these subjects: (1) "Antiseptic Midwifery in Hospital, Dispensary, and Private Practice;" (2) "Membranous Enteritis." These prizes will be awarded according to the provisions of the will of the founder of the Fiske Fund.

THE REPORT OF THE LIBRARY COMMITTEE

was read by Dr. T. Newill, Chairman. Number of books added during the past year, 1037. Total number now in the library, 5630.

BUILDING FUND.

DR. W. R. WHITE submitted the following resolution, which was unanimously adopted:

"*Resolved*, That the Chair be instructed to appoint a committee of five Fellows, to be known as the Building Committee, of which the President of the Society shall be a member *ex officio*. It shall be the duty of this Committee to solicit funds for the purpose of procuring a building, to be used as the headquarters of this Society."

Upon motion of Dr. Leonard, it was voted to transfer $700 from the general treasury of the Society to the Building Fund, *as soon* as the surplus in the treasury will admit of so doing.

VISITING DELEGATES.

The Chair presented Dr. William Ingalls, of Boston, delegate from the Massachusetts Medical Society; also Drs. Henry I. Bowditch, Henry W. Williams, Robert T. Edes, and James R. Chadwick, all of Boston, who were present as guests of the Society.

DR. H. I. BOWDITCH, upon invitation of the Chair, read a paper upon the *Present Attitude of the Profession toward Electicism and Homœopathy*.

THE ELECTION OF OFFICERS

for the ensuing year resulted as follows:

President.—Dr. Horace G. Miller.

Vice-Presidents.—Dr. Albert Potter and Dr. John W. Mitchell.

Recording Secretary.—Dr. George D. Hersey.

Corresponding Secretary.—Dr. E. M. Harris.

Treasurer.—Dr. Charles H. Leonard.

Board of Censors.—Drs. A. Ballou, J. H. Eldredge, J. W. C. Ely, G. P. Baker, S. S. Keene, Benjamin Greene, Eugene Kingman, and Job Kenyon.

Dr. George W. Carr's term of office in the Board of Examiners having expired, he was reappointed by the Chair for a term of five years.

Drs. Samuel L. Caldwell, Jr., John Champlin, George L. Collins, Thomas W. Hayne, Walter L. Munro, and Stephen A. Welch were elected to fellowship.

It was voted to hold the next quarterly meeting in Providence.

PREVENTION OF CONTAGIOUS DISEASES.

DR. H. R. STOVER, chairman of the committee appointed at the last quarterly meeting to memorialize the General Assembly with reference to the granting of money and power for the purpose of checking the spread of contagious diseases, reported that the desired measure was successfully started, and was approved by one branch of the General Assembly, but, falling into the hands of the Finance Committee, it was finally indefinitely postponed.

The Annual Address was delivered by Dr. Wm. H. Palmer, of Providence, on "Heredity, and some Medico-Legal Conclusions therefrom."

The Society then adjourned to Blackstone Hall to partake of the

ANNUAL DINNER,

at which Dr. Wm. R. White officiated as anniversary chairman.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, May 1, 1886.

THE PRESIDENT, F. G. RODDICK, M.D., IN THE CHAIR.

PUERPERAL SETICÆMIA AND ULCERATIVE ENDOCARDITIS.

DR. WYATT JOHNSTON exhibited a heart the valves of which showed an early stage of ulcerative endocarditis. The patient had been confined some two weeks previously and had been perfectly well till the tenth day, when she had a chill and a sudden rise of temperature. There was no pelvic tenderness; no heart murmur. She rapidly grew worse and died. The uterus and vagina were also shown; the latter had a small ulcer near the external opening, which appeared a day or two before death, otherwise both organs appeared to be in the normal condition of that period after delivery. There was some slight inflammation about the broad ligaments. Dr. Johnston also exhibited a slide of the bacilli found. Everywhere the bacilli of puerperal fever were found in abundance. The growths on the valves were especially rich in them, but no bacilli peculiar to ulcerative endocarditis were discovered.

SEVERE COMPOUND FRACTURE OF BOTH LEGS.

DR. SHEPHERD exhibited a patient who last August had suffered from a severe compound comminuted fracture of both legs. The man was a sailor, æt. twenty-eight, and had last August fallen through the hold of his ship, some thirty feet, severely injuring his legs. He was brought to hospital and on examination it was found that the right leg was broken in three places on the middle and lower thirds, and had two large wounds on the anterior surface communicating with the fracture; the largest some two inches in length. The left leg was also broken in the same place as the right and was comminuted; there was a wound about an inch long communicating with the bone. The wounds in both legs were bleeding freely and the man had lost a considerable amount of blood. Both legs were in a bad condition, the right especially having the soft parts much lacerated. Both legs were cleansed with bichloride 1 : 1500, the wounds being thoroughly washed out; then, after some sutures were inserted, and the parts thoroughly dusted with iodoform, the wounds were covered with pads of sublimate jute kept in place with a gauze bandage. Then both legs were put in plaster-of-Paris bandages, openings being left opposite wounds. Next day the man's temperature was normal and he was feeling very comfortable. The dressings were not disturbed for a whole month; at the end of that time they were removed and the wounds were found completely healed, but the bones were still ununited. The legs were again put up in plaster-of-Paris bandages, which were renewed as occasion required.

Dr. Shepherd remarked that he had treated a number of compound fractures in this way with the best results. Once he had to ligature the posterior tibial artery in a case of compound fracture of the lower end of the tibia involving the ankle-joint; the wound healed under a single dressing.

The patient presented showed a remarkably good result: the right leg was firmly united with about an inch of shortening; the left, although there was little shortening, was not yet quite firm, the union still being fibrous. The man was, however, walking about quite comfortably, and able to do light work.

THE DETERMINATION AND CAUSATION OF SEX

was the title of a paper read by Dr. J. C. Cameron for DR. PERCY MATTHEWS, of Morre Factory, Northwest Territory. After giving an interesting historical *résumé* of the chief theories of sex-causation and sex-determination from the time of Hippocrates to the present day, Dr. Matthews directed attention to Frankenhauser's method of determining sex by counting the fœtal heart beats. This theory he rejected, because his own observations failed to support it, and because in observing the pulse rate of a number of children within an hour after birth he found too slight a difference to warrant any conclusions respecting sex. He then criticised at some length Dr. Starkweather's book on the *Law of Sex*, holding, in opposition to the author, that in neither men nor animals can sex be controlled or definitely foretold.

DR. CAMERON, in commenting on the paper, remarked that a series of his own observations made in 1879, 1880, and 1881, seemed to bear out Frankenhauser's theory. The latter diagnosed 50 consecutive cases, and found the

mean fœtal pulse in males to be 124, and in females 144. Steinbach followed with 45 successful cases out of 57, making the mean fœtal male pulse to be 131 and the female 138. Devilliers, in France, and Cumming, in Edinburgh, contested these opinions, and held that the frequency of the fœtal heart beat depended on the size and weight of the child rather than on its sex, being slower in large well-nourished children. The male child being usually the larger, the slower heart beat is thus accounted for. In the New Sydenham Society's edition of Smellie's *Midwifery*, McClintock quotes some observations of Dr. Frank C. Wilson, of Louisville, Ky., which are so similar to Dr. Cameron's, that he tabulated them together as follows. The lowest fœtal heart beat observed by Dr. Cameron was 98, in a large male child:

Fœtal Heart-beat.	Dr. Wilson's Cases.			Dr. Cameron's Cases.			Deduction.
	Total.	Males.	Females	Total.	Males.	Females.	
110–125	37	35	2	15	15	0	Almost certainly male.
125–130	15	13	2	14	14	0	Probably male.
130–134	12	8	4	7	2	5	Doubtful—chances in favor of male.
134–138	7	2	5	15	5	10	" " " female.
138–143	9	2	7	19	3	16	Probably female.
143–170	26	24	2	39	1	38	Almost certainly female.

To secure accuracy, the following precautions should be taken:

1. Observations should be made before or in the early part of labor; never in the second stage, as labor pains accelerate the fœtal heart beat.

2. Several observations should be made, and the mean calculated, for, during the painless contractions of the uterus, an acceleration of 10 to 20 beats sometimes occurs.

Dr. Cameron went on to say that the essential points in Starkweather's *Law of Sex* were as follows:

1. The sperm and germ elements share equally in the determination of sex.

2. Sex is determined by the superior potentiality of one or other.

3. The superior parent or element at the time of fruitful intercourse determines the opposite sex in the offspring.

4. It is possible in the great majority of cases to prognosticate which sex will result from the union of certain parents.

5. The sex of offspring is or might be generally within the control of parents.

Dr. Starkweather's argument is not supported by an appeal to the experience of stockbreeders, many of whom claim wonderful powers, and cite wonderful cases; but it is generally admitted that though it would be much to their pecuniary interest to regulate sex, stockbreeders have little or no power to do so, although they can develop or eliminate other physical qualities to a surprising degree. Though containing much truth, this theory is far from proven; indeed, such an important power as that of regulating sex is probably unattainable, for its possession would be prejudicial to the best interests of the race. Dr. Cameron remarked that the subject is an important one, and would repay careful study, and much light might thereby be thrown upon the obscurities and intricacies of heredity, and substantial progress made toward the prevention and rational treatment of such diseases as gout, hæmophilia, dipsomania, etc.

CORRESPONDENCE.

JEJUNOSTOMY.

To the Editor of The Medical News.

Sir: In looking over your excellent journal, from which I have drawn pretty largely, as you are aware, I found myself interested in an address by Dr. Senn on the present status of abdominal surgery. I should like to be allowed to point out in your columns that my friend, Dr. Robertson, of Oldham, has not performed duodenostomy, though he suggested to Mr. Southam the performance of this operation, the operation which he performed having been jejunostomy, see *British Medical Journal*, Feb. 21, 1885. At the time when he performed the operation Dr. Robertson supposed himself to be the first who had done it, as he actually was the first in Great Britain. He subsequently discovered, however, that M. Surmay had previously done two operations of the same nature. Following M. Surmay's nomenclature, he styled his operation enterostomy at the head of the paper, a fact which has probably misled those who have subsequently written on the operation. A perusal of the paper will, however, leave no doubt that the operation was jejunostomy, by which name he actually designates it in the course of his communication. I am yours, faithfully,

James Niven,
Editor *Manchester Medical Chronicle.*

Oldham, May 31, 1886.

NEWS ITEMS.

The Statue of Sir Erasmus Wilson was unveiled in London on May 24, 1886, with imposing ceremonies.

Effects of Tobacco on the Health of Men of Letters, and its Influence on the Future of French Literature, is the theme to be discussed in a series of essays, for the best of which the French Society for the Prevention of the Abuse of Tobacco offers a prize of 1000 francs.

Death of Mr. Francis Mason.—Mr. Francis Mason, Surgeon to St. Thomas's Hospital, London, died on June 5, 1886, in his fiftieth year. He was chiefly

known to the profession as an authority on the plastic surgery of the face, and performed staphylorrhaphy with great success and dexterity.

Flies as Diagnosticians.—*The Sanitarian* relates a case in which a rat had died under the floor of a large drawing-room, and was giving great offence to the owner of the house, who had had the carpets and furniture removed preparatory to taking up the floor. An ingenious friend drops in, suggests that the doors and windows be shut, steps out to the stables and traps a couple of blue-bottle flies, and returning, sets them free in the apartment. The flies, after a little undetermined buzzing, settled pertinaciously on a certain crack in the floor, and on the removal of one plank at this point the cause of offence was readily removed.

Hygiene in Schools in Hungary.—At an Educational Conference, recently held in Buda-Pesth, under the presidency of M. Trefort, the Minister of Public Education, the following regulations were established: Every middle class school is to have a medical officer, who will receive an annual salary of 200 florins in schools where a complete course of instruction is given, and 100 florins in other schools. He must examine every pupil at the commencement of each scholastic year, and keep a constant watch over their health, and must give special attention to the prevention or eradication of infectious diseases. He will also give advice during gymnastic exercises. He will also keep a watch over the instruction in general; and, if he observe any deleterious influence in operation, with regard either to the whole school or to individual pupils, he will bring the same under the notice of the director of the school. In the complete schools, he will give instructions in hygiene, for two hours each week, to those pupils of the higher classes who may desire to receive it, the subject being treated in an easy and popular manner.

Lanolin an Old Remedy.—It appears that lanolin is not entitled to take rank among the most recent additions to the materia medica, inasmuch as Culpepper, the venerable "student in Physick," described it in his work published in 1650. This has been lately pointed out by a correspondent of the *Chemist and Druggist*, who gives the following extract:

"*The Way to make Œsipus.* Take wool cut off from the neck ribs, and under the pits of the forelegs of a sheep not washed, but well wearied, wash it well in warm water so long till it have left all its fatness in the water, then press it out and lay it by, let that fat and foul water be poured out from on high out of one vessel into another a long time till it be froathy, then let the froath settle, and take off the fat that swims at the top, then pour the water to and fro again, till neither more fat nor froath appears, then wash the froath with the fat in cleer water till it be cleansed from the dross and will not bite your tongue if you touch it with it; then keep in a thick earthen clean pot in a cold place."

Death of Professor Auspitz.—Professor Heinrich Auspitz, editor of the *Vierteljahresschrift für Dermatologie und Syphilis*, died on May 21, 1886, in his fifty-second year.

Bowdoin College.—The graduating exercises of the Medical Department of Bowdoin College were held on Wednesday, June 23, 1886.

Indiana State Medical Society.—At the meeting of the Indiana State Medical Society, held at Indianapolis, May 11th and 12th, the following officers were elected for the present year:

President.—G. W. H. Kemper, M.D., of Muncie.

Vice-President.—W. V. Wiles, M.D., of Spencer.

Secretary.—E. S. Elder, M.D., of Indianapolis.

Assistant Secretary.—J. McLean Moulder, M.D., of Kokomo.

Treasurer.—C. B. Higgins, M.D., of Peru.

The Society for Cremation, in Copenhagen, has bought a site for a crematorium, for which it has given 22,000 crowns. Prof. Dahlerup has drawn the plan of the building, and the erection will be hastened so as to be used this year. It was originally intended to build the furnace on Siemens's method, but the cost being excessive, the Italian plan known as Goroni's has be substituted, the cost of which will be 9600 crowns.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department of the U. S. Army, from June 15 to June 21, 1886.

Perin, Glover, *Colonel and Assistant Surgeon-General, U. S. A.*—Granted leave of absence for one month, with permission to apply for one month's extension.—*S. O. 54, Department of Dakota*, June 14, 1886.

Billings, J. S., *Major and Surgeon.*—Granted two months' leave of absence, with permission to go beyond sea, to take effect July 9, 1886.—*S. O 138, A. G. O.*, June 16, 1886.

Landendale, J. V., *Captain and Assistant Surgeon.*—Ordered for duty as Post Surgeon at Fort Concho, Texas.—*S. O. 70, Department of Texas*, June 12, 1886.

Comegys, Edward T., *Captain and Assistant Surgeon.*—Ordered for duty as Post Surgeon at Madison Barracks, Sackett's Harbor, New York.—*S. O. 61, Division of the Atlantic*, June 15, 1889.

Black, C. S., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Stockton, Texas, to Fort Clark, Texas.—*S. O. 69, Department of Texas*, June 11, 1886.

Official List of Changes in the Medical Corps of the Navy, for the Week Ending June 19, 1886.

Swan, R., *Passed Assistant Surgeon.*—Detached from Brooklyn, and wait orders.

Lovering, P. A., *Passed Assistant Surgeon.*—Detached from Navy Yard, New York, and ordered to Brooklyn.

Arthur, George, *Passed Assistant Surgeon.*—Ordered to Navy Yard, New York.

Rush, C. W., *Passed Assistant Surgeon.*—Detached from the "Franklin," and ordered to the "Brooklyn."

Hawke, J. A., *Surgeon.*—Detached from the "Wabash," and ordered to the "Essex" July 1.

Smith, Howard, *Surgeon.*—Ordered to the "Wabash."

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1001 Walnut Street, Philadelphia.*

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